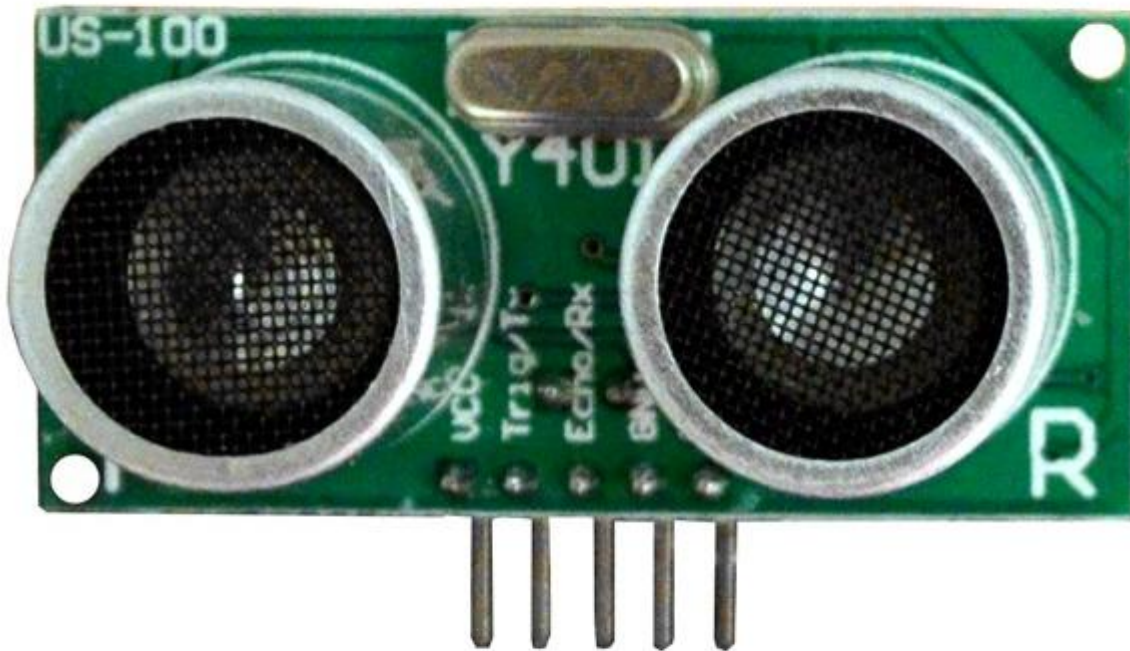


US-100 ULTRASONIC SENSOR MODULE



Description

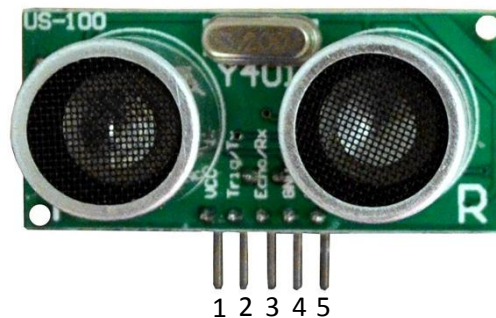
The Ultrasonic sensor module is a convenient way for measuring distances from objects. This module has a lot of applications such as parking sensors, obstacle and terrain monitoring systems, industrial distance measurements, etc. It has a stable performance and high accuracy ranging from 2cm to 450cm.

The module sends an ultrasonic signal, eight pulses of 40kHz square wave from the transmitter; the echo is then picked up by the receiver and outputs a waveform with a time period proportional to the distance. The connected microcontroller accepts the signal and performs necessary processing.

Specifications

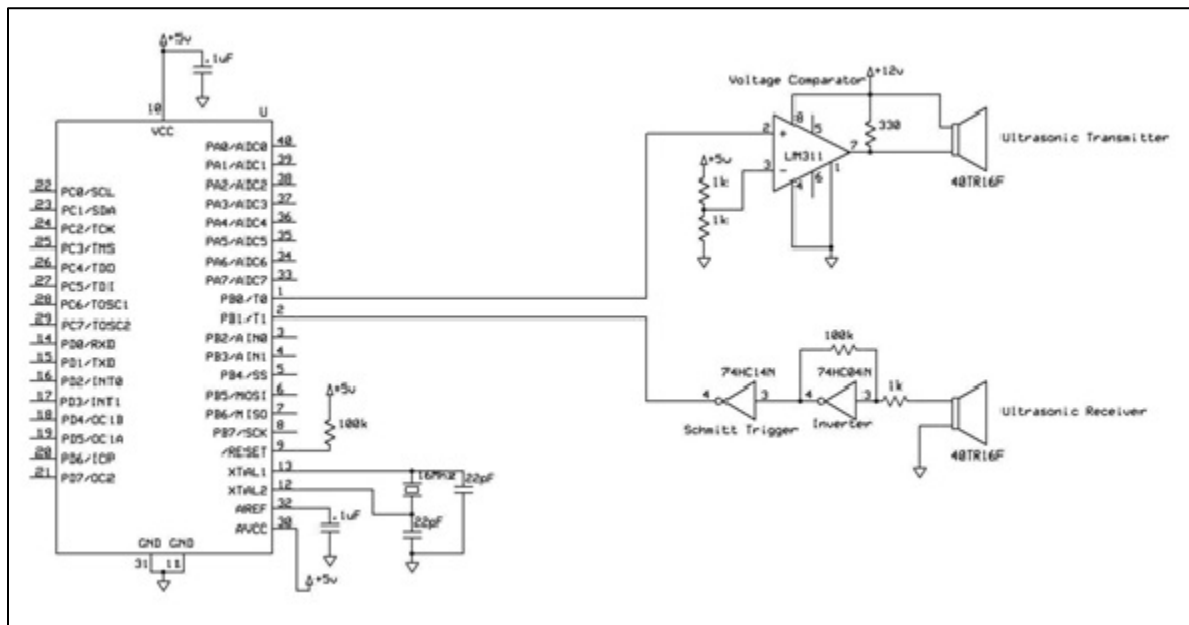
- Input voltage: 5V DC **3,3V - 5V**
- Quiescent current: less than 2mA
- Level output: 5V high
- Level output: at the end of 0V
- Induction angle: not more than 15 degrees
- Detection distance: 2cm-450cm
- Precision: up to 1mm
- Dimensions: 4.4cm x 2.6cm x 1.4cm
- Weight: 43g

Pin Configuration

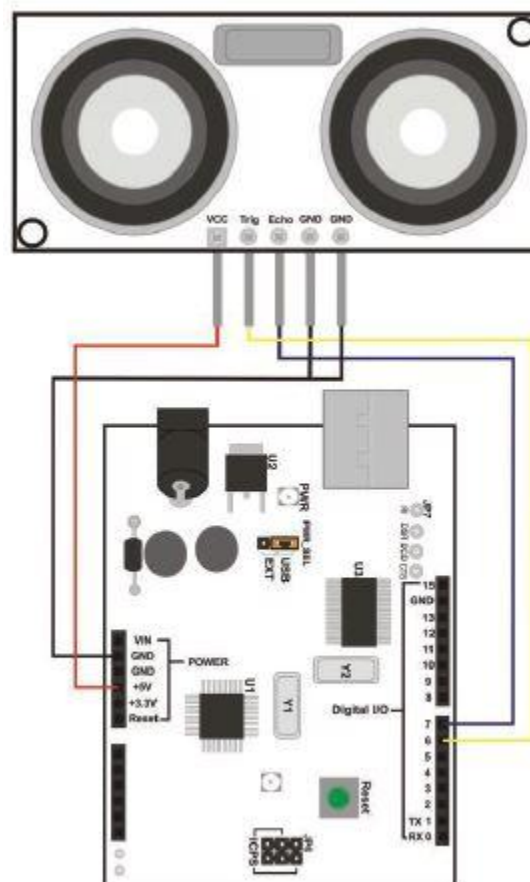


1. VCC: 5V DC
2. Trig: trigger input
3. Echo: pulse output
4. GND: ground
5. GND: ground

Schematic Diagram



Wiring Diagram



Sample Sketch

```
const int trig = 6;
const int echo = 7;
long time, dist;

void setup(){
  Serial.begin(9600);
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
}

void loop(){
  digitalWrite(trig, LOW);
  delayMicroseconds(2);
  digitalWrite(trig, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig, LOW);

  time = pulseIn(echo, HIGH);
  dist = (time/2) / 29.1;

  if(dist>500 or dist==0) Serial.println("Out of Range");
  else{
    Serial.print(dist);
    Serial.println(" cm");
  }

  delay(500);
}
```

How to test

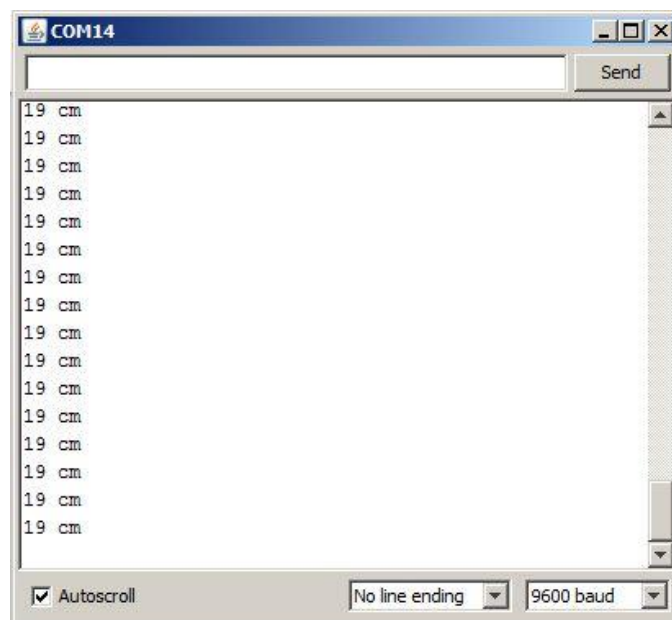
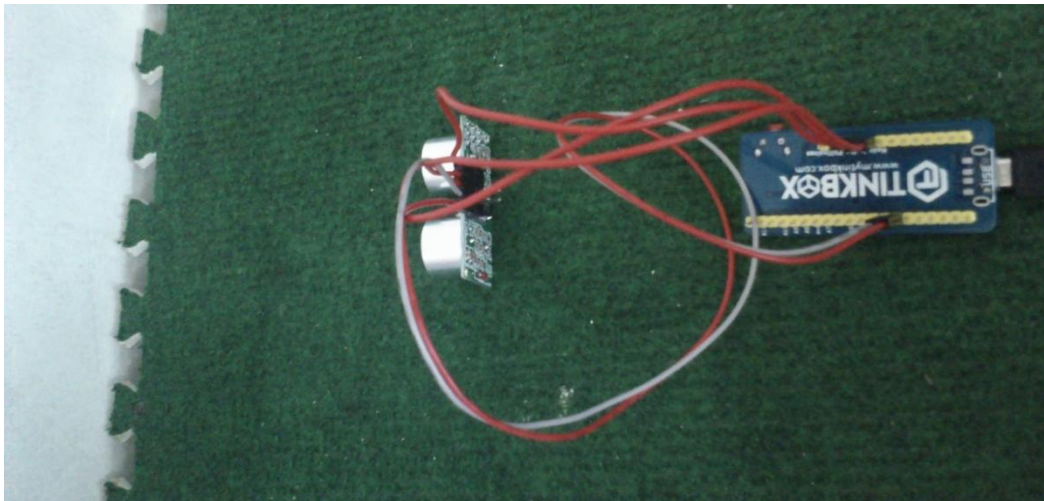
The components to be used are:

- Microcontroller (any compatible arduino)
 - US-100 Ultrasonic sensor module
 - Pin connectors
 - Breadboard
 - USB cable
1. Connect the components based on the figure shown in the wiring diagram using pin connectors. VCC pin is connected to the 5V power supply, GND pins are connected to the GND and the Trig and Echo pins are connected to the digital I/O pins. Pin number will be based on the actual program code.

2. After hardware connection, insert the sample sketch into the Arduino IDE.
3. Using a USB cable, connect the ports from the microcontroller to the computer.
4. Upload the program.
5. See the results in the serial monitor.

Testing results

The serial monitor shows the distance (cm) between the sensor module from the wall.



When the module was moved closer

