

Ultrasonic Distance Sensor HC-SR04



- Price: Rs.525.00 including Taxes

Description

The HC SR04 is an inexpensive ultrasonic distance sensor.

Specifications:

power supply :5V DC

quiescent current : <2mA

effectual angle: <15°

ranging distance : 2cm – 500 cm

resolution : 0.3 cm

Works with Arduino

Sample Arduino Code

/* HC-SR04

A Simple Modified version of the Ping Sensor Program t

*/

// this constant won't change. It's the pin number
// of the sensor's output / trigger
const int echo = 8, Trig = 9;

```
void setup() {  
  // initialize serial communication:  
  Serial.begin(9600);  
  pinMode(Trig, OUTPUT);  
  pinMode(echo, INPUT);  
}
```

```
void loop()  
{  
  // establish variables for duration of the ping,  
  // and the distance result in inches and centimeters:  
  long duration, inches, cm;
```

```
  // The PING))) is triggered by a HIGH pulse of 10 microseconds.  
  // Give a short LOW pulse beforehand to ensure a clean HIGH pulse:
```

```
  digitalWrite(Trig, LOW);  
  delayMicroseconds(2);  
  digitalWrite(Trig, HIGH);  
  delayMicroseconds(10);  
  digitalWrite(Trig, LOW);
```

```
  // The echo pin is used to read the signal from the PING))) : 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.
```

```
  duration = pulseIn(echo, HIGH);
```

```
  // convert the time into a distance  
  inches = microsecondsToInches(duration);  
  cm = microsecondsToCentimeters(duration);
```

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

```
delay(100);
}
```

```
long microsecondsToInches(long microseconds)
{
// According to Parallax's datasheet for the PING))) there are
// 73.746 microseconds per inch (i.e. sound travels at 1130 feet per
// second). This gives the distance travelled by the ping, outbound
// and return, so we divide by 2 to get the distance of the obstacle.
return microseconds / 74 / 2;
}
```

```
long microsecondsToCentimeters(long microseconds)
{
// The speed of sound is 340 m/s or 29 microseconds per centimeter.
// The ping travels out and back, so to find the distance of the
// object we take half of the distance travelled.
return microseconds / 29 / 2;
}
```