Lesson 14 Measure the distance

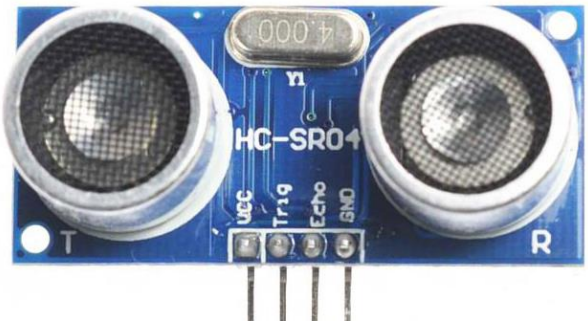
Overview

In this lesson, we will learn how to measure the distance by the ultrasonic distance sensor.

Requirement

- 1* Raspberry Pi
- 1* Ultrasonic distance sensor
- 1* Breadboard
- Several Jumper wires

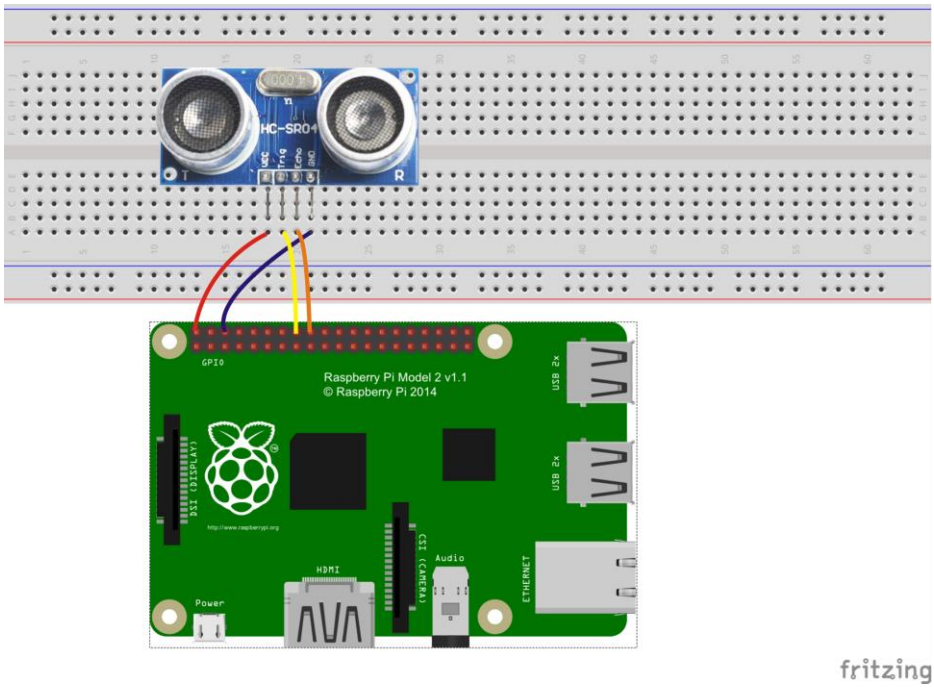
Principle



This recipe uses the popular Parallax PING ultrasonic distance sensor to measure the distance of an object ranging from 2 cm to around 3 m. This sensor works by sending a sound wave out and calculating the time it takes for the sound wave to get back to the ultrasonic sensor. By doing this, it can tell us how far away an obstacle is relative to the ultrasonic.

Procedures

1. Build the circuit



2. Program

C user:

2.1 Edit and save the code with vim or nano.

(Code path: /home/Adeept_Ultimate_Starter_Kit_C_Code_for_RPi/14_ultrasonicSensor/distance.c)

2.2 Compile the program

```
$ gcc distance.c -o distance -lwiringPi
```

2.3 Run the program

```
$ sudo ./distance
```

Python user:

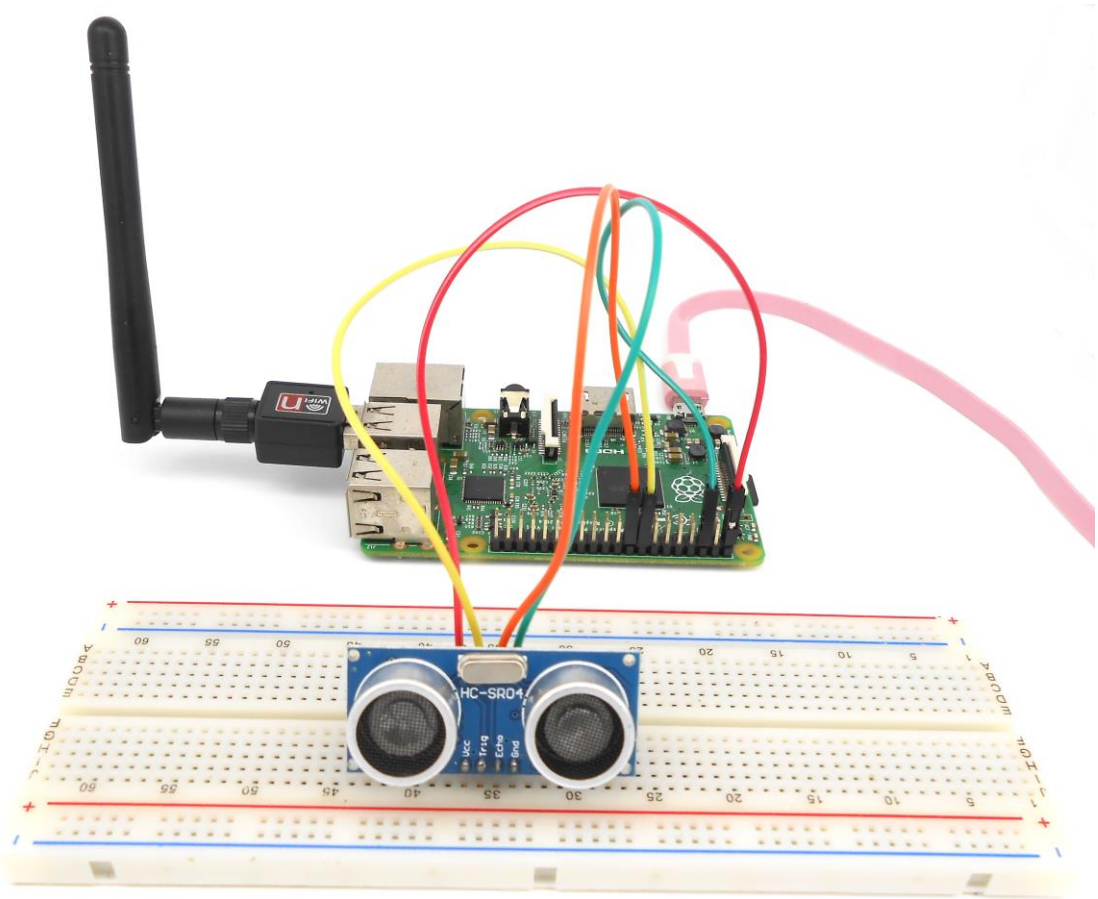
2.1 Edit and save the code with vim or nano.

(Code path: /home/Adeept_Ultimate_Starter_Kit_Python_Code_for_RPi/14_distance.py)

2.2 Run the program

```
$ sudo python 14_distance.py
```

Now, you will see the distance between the obstacle and the ultrasonic sensor display on the screen.


HC-SR04
Vcc
Trig
Echo
Gnd