Project 3

Smart Distance Measuring Device

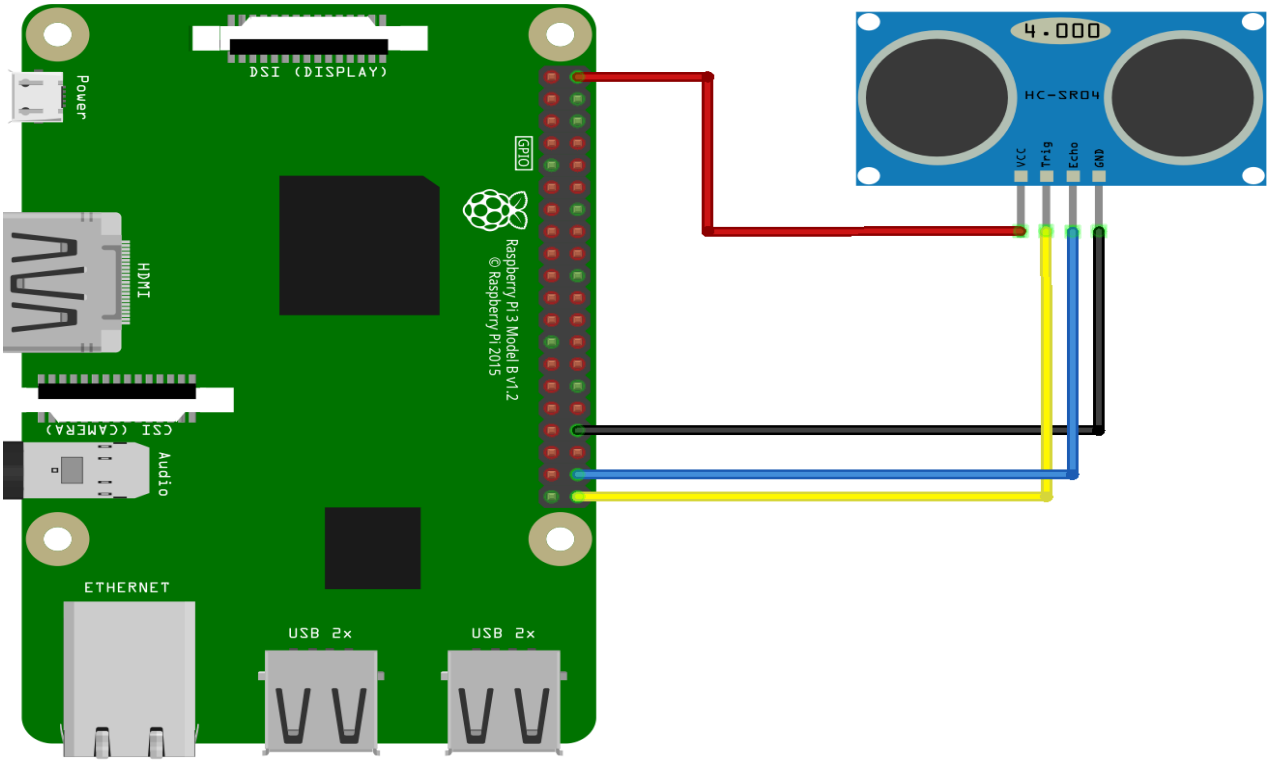
Introduction

In this project you are going to make a distance measuring device using an ultrasonic sensor with the Raspberry PI. I hope you understood how to interface ultrasonic sensor to the raspberry pi So far.

Hardware Required

- Raspberry Pi
- Ultrasonic Sensor
- Connecting Wires
- Breadboard
- Power Supply

Hardware Setup



Python Coding

```
import RPi.GPIO as GPIO
import time
GPIO.setmode(GPIO.BCM)


TRIG = 21
ECHO = 20


print "Distance Measurement In Progress"


GPIO.setup(TRIG,GPIO.OUT)
GPIO.setup(ECHO,GPIO.IN)


GPIO.output(TRIG, False)
print "Waiting For Sensor To Settle"
time.sleep(2)


GPIO.output(TRIG, True)
time.sleep(0.00001)
GPIO.output(TRIG, False)


while GPIO.input(ECHO)==0:
  pulse_start = time.time()


while GPIO.input(ECHO)==1:
  pulse_end = time.time()
```

```
pulse_duration = pulse_end - pulse_start


distance = pulse_duration * 17150


distance = round(distance, 2)


print "Distance:",distance,"cm"


GPIO.cleanup()
```

Output

Save your python script, I called ours "range_sensor.py", and run it using the following command. The sensor will settle for a few seconds, and then record your distance, and distance will be printed in unit of cm.