

Raspberry Pi with Ultrasonic Sensor

We will write more than one code to calculate the distance through Raspberry pi.

➤ If you will calculate distance only, you can choose this code:

```
from gpiozero import DistanceSensor
from time import sleep
ultrasonic = DistanceSensor(echo=17, trigger=4)
while True:
    print(ultrasonic.distance)
    sleep(0.5)
```

➤ If you want to calculate the distance and sound an alarm that there is an object and the frequency of the sound increases as the object approaches, you can choose this code:

```
from gpiozero import DistanceSensor
from time import sleep

sensor = DistanceSensor(23, 24)
buz = Buzzer(17)

while True:
    print(f"Distance to sensor is {sensor.distance} m")
    dist = sensor.distance
    buz.on()
    sleep(dist)
    buz.off()
    sleep(dist)
```

➤ If you want to calculate the distance and write the object in or out of your range:

```
from gpiozero import DistanceSensor
from time import sleep

ultrasonic = DistanceSensor(echo=17, trigger=4)

# Define threshold distance in meters
threshold_distance = 0.2 # 20 cm

while True:
    distance = ultrasonic.distance
    print(f"Distance: {distance:.2f} meters")

    # Check if the object is within range
    if distance < threshold_distance:
        print("Object detected within range!")
    else:
        print("Out of range!")

    sleep(0.5) # Wait for 0.5 seconds before the next measurement
```