

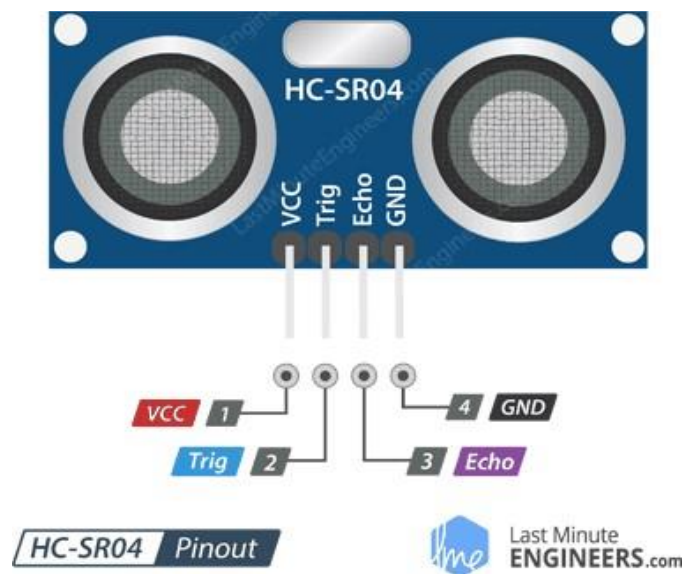
Practical – 7

Aim: What is HC-SR04 Ultrasonic sensor? Explain it's Structure, How it works, Applications. Programming & Interfacing of HC-SR04 Sensor with Arduino Uno.

HC-SR04 Ultrasonic Sensor:

The HC-SR04 ultrasonic sensor uses SONAR to determine the distance of an object just like the bats do.

Structure:



Ultrasonic Sensor Applications:

1. Robotic sensing.
2. Stacking height control.
3. Loop control.
4. Liquid level control.
5. Full detection.
6. Counting people/people detection.
7. Presence detection.
8. Detecting breaks in threads or wires.

Code:

```
#include "NewPing.h"
```

```
int ledPin = 11;
int buz = 5; int
dis;

NewPing sonar(TRIGGER_PIN, ECHO_PIN, MAX_DISTANCE);

void setup() {
  Serial.begin(9600);
  pinMode(ledPin, OUTPUT);
  pinMode(buz,OUTPUT);
}

void loop() {
  Serial.print("Distance = ");
  Serial.print(sonar.ping_cm());
  Serial.println(" cm");  dis =
  sonar.ping_cm();  if(dis <=25)
  {
    analogWrite(ledPin,255);
    analogWrite(buz,255);
  }
  else if(dis >25 && dis <=50)
  {

    analogWrite(ledPin,175);
    analogWrite(buz,175);
  }
}
```

```
else if(dis >50 && dis <=75)
{
    analogWrite(ledPin,100);
analogWrite(buz,100);
}
else if(dis >75 && dis <=100)
{
    analogWrite(ledPin,25);
analogWrite(buz,100);
}
else
{
    analogWrite(ledPin,0);
analogWrite(buz,0);
}
}
```

Output:

