TITLE: ULTRASONIC WAVE DETECTION.

TEAM LEAD: UKKESH. S

CODE:

```
Int sensor=4, trig=2, echo=2, light=8, buzz=12;

Int dist = 0;


Long objectDistance(int a, int b)
{
  pinMode(a, OUTPUT);  // Clear the trigger
  digitalWrite(a, LOW);
  delayMicroseconds(2);
  digitalWrite(a, HIGH);
  delayMicroseconds(10);
  digitalWrite(a, LOW);


  pinMode(b, INPUT);


  return pulseIn(b, HIGH);
}

Void setup()
{
  Serial.begin(9600);
  pinMode(sensor, INPUT);
  pinMode(light, OUTPUT);
  pinMode(buzz, OUTPUT);
  digitalWrite(light, LOW);
}
```

```
Void loop()
{
 //readUltrasonicDistance(7, 7)
 Dist = 0.01723 * objectDistance(trig, echo);
 Serial.print("Distance is ");
 Serial.print(dist);
 Serial.println("cm");
 If(dist>50 && dist<100)
 {
  Tone(buzz, 50);
  Delay(2000);
  noTone(buzz);
  //delay(1000);
  If(digitalRead(sensor))
  {
   digitalWrite(light, HIGH);
   delay(2000);
  }
 }
}
```

Home automation

```
// C++ code
//
#include <Servo.h>

Long readUltrasonicDistance(int triggerPin, int echoPin)
{
 pinMode(triggerPin, OUTPUT);  // Clear the trigger
 digitalWrite(triggerPin, LOW);
```

```
  delayMicroseconds(2);
  // Sets the trigger pin to HIGH state for 10 microseconds
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in microseconds
  Return pulseIn(echoPin, HIGH);
}

Servo servo_3;

Void setup()
{
  pinMode(0, INPUT);
  pinMode(13, OUTPUT);
  pinMode(0, OUTPUT);
  servo_3.attach(3, 500, 2500);
  pinMode(A5, INPUT);
  pinMode(12, OUTPUT);
  pinMode(A4, INPUT);
  pinMode(11, OUTPUT);
}

Void loop()
{
  If (digitalRead(0) == 1) {
    digitalWrite(13, HIGH);
  } else {
```

```
    digitalWrite(0, LOW);

  }

  If (0.01723 * readUltrasonicDistance(0, 0) >= 100) {

    Servo_3.write(90);

    Delay(1000); // Wait for 1000 millisecond(s)

  } else {

    Servo_3.write(0);

    Delay(1000); // Wait for 1000 millisecond(s)

  }

  If (analogRead(A5) <= 100) {

    digitalWrite(12, HIGH);

  } else {

    digitalWrite(12, LOW);

  }

  If ((-40 + 0.488155 * (analogRead(A4) – 20)) < 30) {

    digitalWrite(11, HIGH);

  } else {

    digitalWrite(11, LOW);

  }

}
```

CIRCUIT DIAGRAM: