

Assignment -4

Assignment Date	27 October-2022
Student Name	S.VARALAKSHMI
Student Roll Number	510119106011
Maximum Marks	2 Marks

QUESTION-1:

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100cms send "alert" to ibm cloud and display in device recent events.

CODE:

```
#define ECHO_PIN 2
```

```
#define TRIG_PIN 3
```

```
void setup() {
```

```
  Serial.begin(115200);
```

```
  pinMode(LED_BUILTIN, OUTPUT);
```

```
  pinMode(TRIG_PIN, OUTPUT);
```

```
  pinMode(ECHO_PIN, INPUT);
```

```
}
```

```
float readDistanceCM() {
```

```
  digitalWrite(TRIG_PIN, LOW);
```

```
  delayMicroseconds(2);
```

```
  digitalWrite(TRIG_PIN, HIGH);
```

```
  delayMicroseconds(10);
```

```
  digitalWrite(TRIG_PIN, LOW);
```

```
  int duration = pulseIn(ECHO_PIN, HIGH);
```

```
  return duration * 0.034 / 2;
```

```
}
```

```

void loop() {

  float distance = readDistanceCM();


  bool isNearby = distance > 100;

  digitalWrite(LED_BUILTIN, isNearby);


  Serial.println(readDistanceCM());


  delay(100);
}

```

OUTPUT:

The screenshot displays the Arduino IDE interface. On the left, the 'sketch.ino' file is open, showing the following code:

```

1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3
4  void setup() {
5    Serial.begin(115200);
6    pinMode(LED_BUILTIN, OUTPUT);
7    pinMode(TRIG_PIN, OUTPUT);
8    pinMode(ECHO_PIN, INPUT);
9  }
10
11 float readDistanceCM() {
12   digitalWrite(TRIG_PIN, LOW);
13   delayMicroseconds(2);
14   digitalWrite(TRIG_PIN, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(TRIG_PIN, LOW);
17   int duration = pulseIn(ECHO_PIN, HIGH);
18   return duration * 0.034 / 2;
19 }
20
21 void loop() { float distance = readDistanceCM();
22
23   bool isNearby = distance > 100;
24   digitalWrite(LED_BUILTIN, isNearby);
25
26
27   Serial.println(readDistanceCM());
28
29   delay(100);

```

On the right, the 'Simulation' window shows a virtual Arduino Uno board connected to an ultrasonic sensor (HC-SR04) and a built-in LED. The sensor is connected to pins 2 and 3, and the LED is connected to the built-in LED pin. The simulation is running, and the console output shows the distance reading of 89.49 cm.

Line	Code	Output
21	float distance = readDistanceCM();	89.49
22		89.49
23	bool isNearby = distance > 100;	89.49
24	digitalWrite(LED_BUILTIN, isNearby);	89.49
25		89.49
26		89.49
27	Serial.println(readDistanceCM());	89.49
28		89.49
29	delay(100);	89.49

OKWISAVESHARE

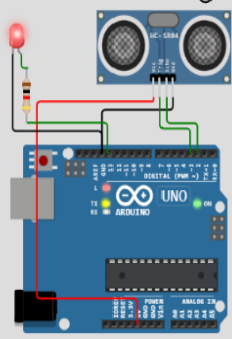
Docs

ketch.ino • diagram.json • Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3
4 void setup() {
5   Serial.begin(115200);
6   pinMode(LED_BUILTIN, OUTPUT);
7   pinMode(TRIG_PIN, OUTPUT);
8   pinMode(ECHO_PIN, INPUT);
9 }
10
11 float readDistanceCM() {
12   digitalWrite(TRIG_PIN, LOW);
13   delayMicroseconds(2);
14   digitalWrite(TRIG_PIN, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(TRIG_PIN, LOW);
17   int duration = pulseIn(ECHO_PIN, HIGH);
18   return duration * 0.034 / 2;
19 }
20
21 void loop() { float distance = readDistanceCM();
22
23   bool isNearby = distance > 100;
24   digitalWrite(LED_BUILTIN, isNearby);
25
26   Serial.println(readDistanceCM());
27
28   delay(100);
29 }
30 }
```

Simulation

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132.29

132.29

132.29

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REFERENCE LINK:

<https://wokwi.com/projects/new/arduino-uno>