

ASSESSMENT-4

ASSESSMENT DATE	05 November 2022
NAME	BRUNDHALAKSHMI A
REGISTER NUMBER	621319106010
MARKS	2 Marks

PROBLEM:

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;
}

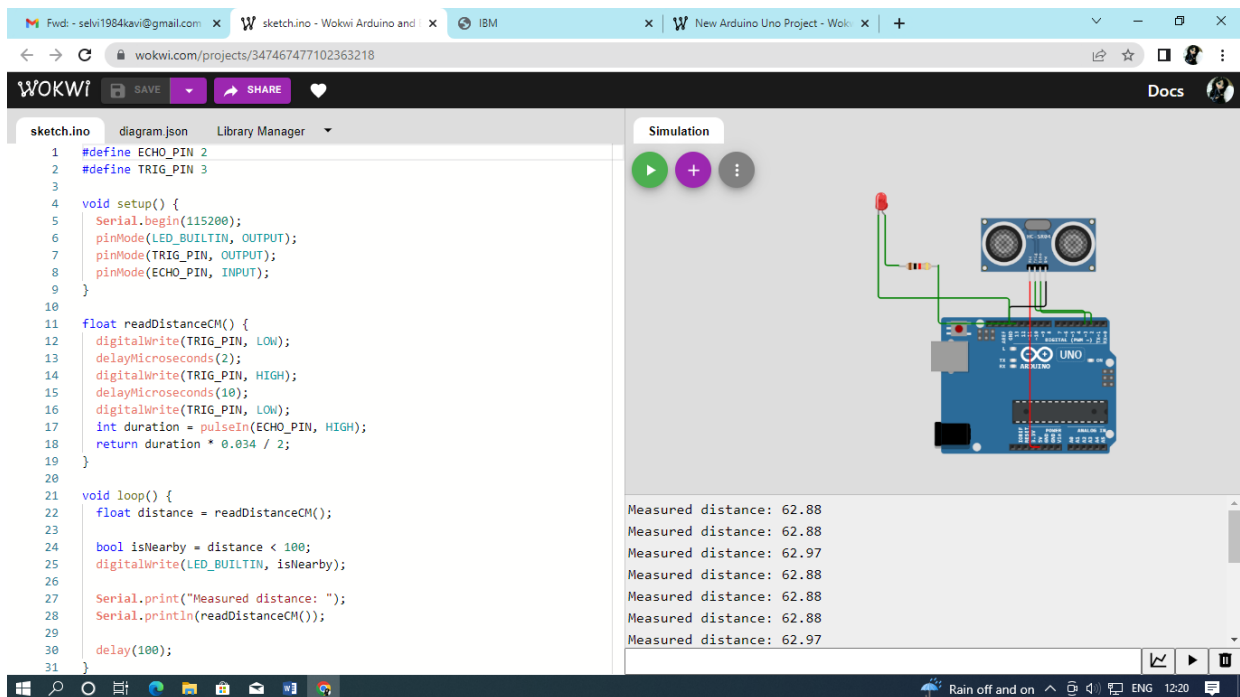
void loop() {
    float distance = readDistanceCM();

    bool isNearby = distance < 100;
    digitalWrite(LED_BUILTIN, isNearby);

    Serial.print("Measured distance: ");
    Serial.println(readDistanceCM());

    delay(100);
}
```

SIMULATION:



The screenshot shows the Wokwi web IDE interface. On the left, the sketch code is displayed:

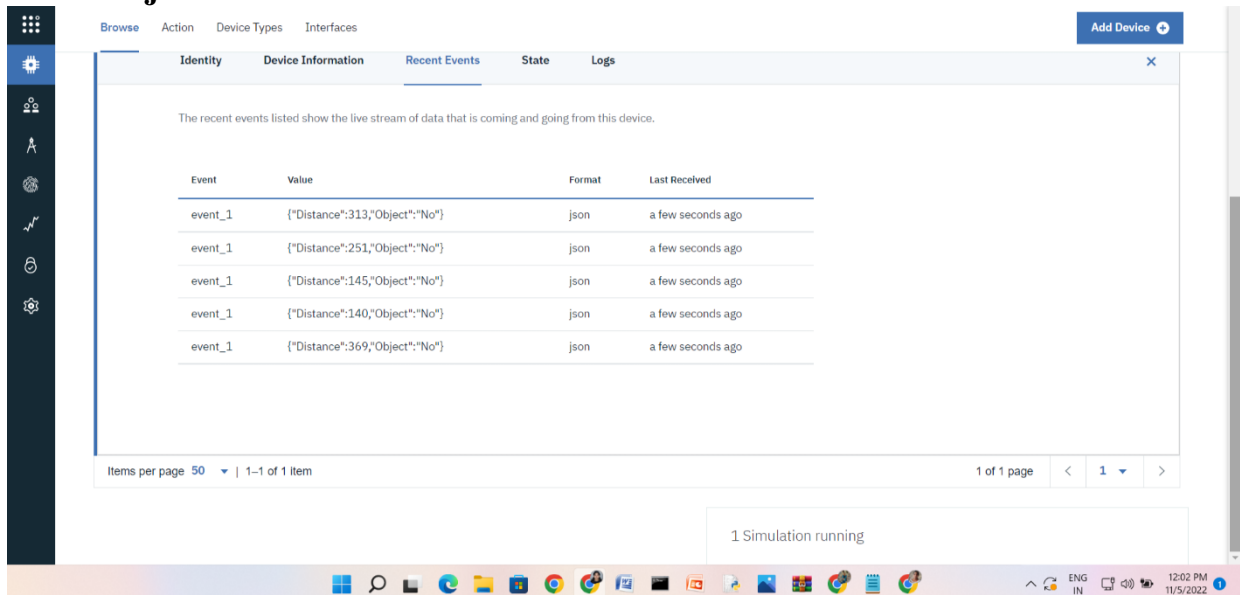
```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3
4 void setup() {
5   Serial.begin(115200);
6   pinMode(LED_BUILTIN, OUTPUT);
7   pinMode(TRIG_PIN, OUTPUT);
8   pinMode(ECHO_PIN, INPUT);
9 }
10
11 float readDistanceCM() {
12   digitalWrite(TRIG_PIN, LOW);
13   delayMicroseconds(2);
14   digitalWrite(TRIG_PIN, 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() {
22   float distance = readDistanceCM();
23
24   bool isNearby = distance < 100;
25   digitalWrite(LED_BUILTIN, isNearby);
26
27   Serial.print("Measured distance: ");
28   Serial.println(readDistanceCM());
29   delay(100);
30 }
31 }
```

On the right, the simulation window shows a visual representation of the Arduino Uno and an HC-SR04 ultrasonic sensor. Below the visual, the following text is displayed:

Measured distance: 62.88
Measured distance: 62.88
Measured distance: 62.97
Measured distance: 62.88
Measured distance: 62.88
Measured distance: 62.88
Measured distance: 62.97

Link: <https://wokwi.com/projects/347467477102363218>

When object distance is >100:



The screenshot shows the Wokwi web IDE interface with the 'Recent Events' tab selected. The table displays the live stream of data coming and going from the device.

Event	Value	Format	Last Received
event_1	{"Distance":313,"Object":"No"}	json	a few seconds ago
event_1	{"Distance":251,"Object":"No"}	json	a few seconds ago
event_1	{"Distance":145,"Object":"No"}	json	a few seconds ago
event_1	{"Distance":140,"Object":"No"}	json	a few seconds ago
event_1	{"Distance":369,"Object":"No"}	json	a few seconds ago

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1 Simulation running

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Device Simulator ⏮️ ⏭️ 🔍

❏	Device ID	Status	Device Type	Class ID	Date Added	Description Location
▼ ❏	123456	Disconnected	NodeMCU	Device	Nov 5, 2022 10:37 AM	→ ...

Identity **Device Information** Recent Events State Logs ✕

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event_1	{"Alert Distance":95,"Object":"near"}	json	a few seconds ago
event_1	{"Alert Distance":14,"Object":"near"}	json	a few seconds ago
event_1	{"Alert Distance":8,"Object":"near"}	json	a few seconds ago
event_1	{"Alert Distance":13,"Object":"near"}	json	a few seconds ago
event_1	{"Alert Distance":5,"Object":"near"}	json	a few seconds ago

1 Simulation running