

Assignment-4

AssignmentDate	25October2022
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ProjectName	Project-SmartFarmer-IoTEnabledSmart FarmingApplication
MaximumMarks	2 Marks

Question-1:

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

Solution:

```
#define ECHO_PIN 2
#define TRIG_PIN 3

#define organization =
"mmbh4c"
#define deviceType =
"Ultrasonic"
#define deviceId =
"pga460_sensor"
#define authMethod =
"use-token-auth"
#define
authToken="123456789"

void setup()
{
  Serial.begin(9600);
  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(); if (distance <= 100
```

```
)
```

```
{
```

```
    Serial.println("person detected");
```

```
}
```

```
else{
```

```
    Serial.print("Measured distance:
```

```
    "); Serial.println(readDistanceCM())
```

```
;
```

```
}
```

```
    delay(1000);
```

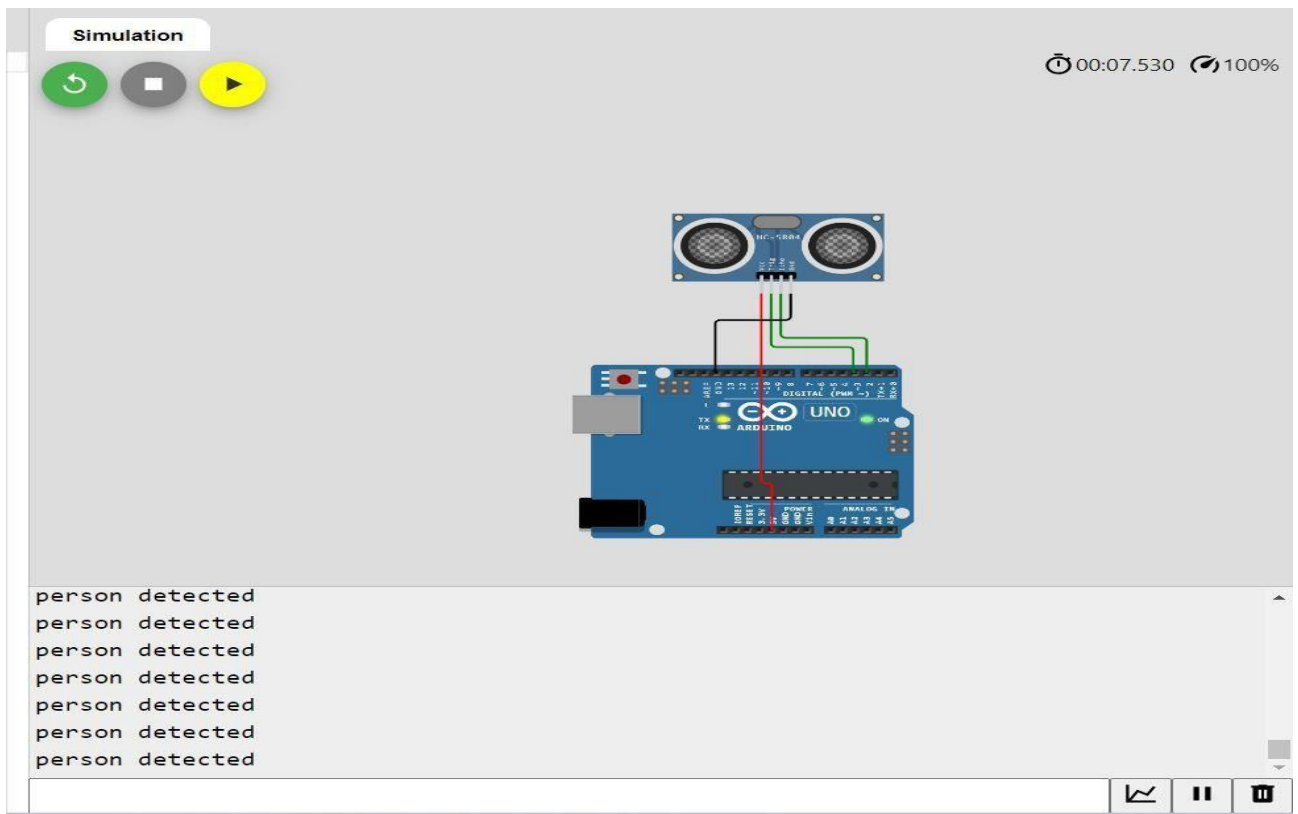
```
}
```

The screenshot displays the Wokwi online 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(9600);
6     pinMode(TRIG_PIN, OUTPUT);
7     pinMode(ECHO_PIN, INPUT);
8 }
9
10 float readDistanceCM() {
11     digitalWrite(TRIG_PIN, LOW);
12     delayMicroseconds(2);
13     digitalWrite(TRIG_PIN, HIGH);
14     delayMicroseconds(10);
15     digitalWrite(TRIG_PIN, LOW);
16     int duration = pulseIn(ECHO_PIN, HIGH);
17     return duration * 0.034 / 2;
18 }
19
20 void loop() {
21     float distance = readDistanceCM();
22     if (distance <= 100)
23     {
24         Serial.println("person detected ");
25     }
26     else{
27         Serial.print("Measured distance: ");
28         Serial.println(readDistanceCM());
29     }
30     delay(1000);
31 }
```

On the right, a simulation of the hardware is shown. An Arduino Uno is connected to an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the 5V pin on the Arduino, and its GND pin is connected to a GND pin. The TRIG pin is connected to digital pin 3, and the ECHO pin is connected to digital pin 2. The simulation includes a 'Simulation' button and a 'Docs' link.

The bottom of the screen shows a Windows taskbar with various application icons and a system tray indicating a temperature of 27°C, cloudiness, and the date 03-11-2022.



WokwiLink : <https://wokwi.com/projects/346661436431270483>

IBMCloud

DeviceRecentEvents

The screenshot shows the IBM Cloud IoT Platform console. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various functions. The main content area displays details for a device named 'Ultrasonic_1', which is 'Connected'. The 'Recent Events' tab is selected, showing a table of events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. Below the table, it indicates '1 Simulation running'.

Event	Value	Format	Last Received
event_1	{"Persondetected" }	json	a few seconds ago
event_1	{"Persondetected" }	json	a few seconds ago
event_1	{"Persondetected" }	json	a few seconds ago
event_1	{"Persondetected" }	json	a few seconds ago
event_1	{"Persondetected" }	json	a few seconds ago