Assignment -4

Python Programming

Assignment Date	25 October 2022
Student Name	Diviya T
Student Roll Number	721719106012
Team ID	PNT2022TMID07524
Maximum Marks	2 Marks

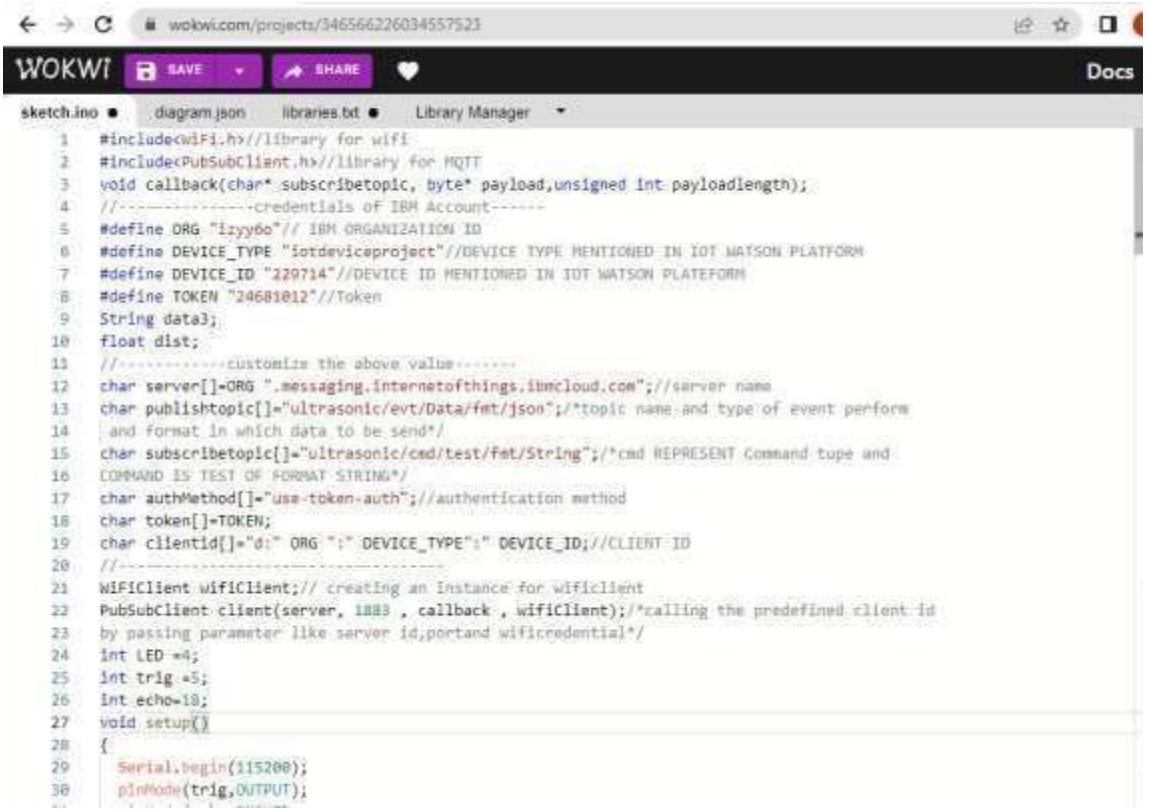
Question-1:

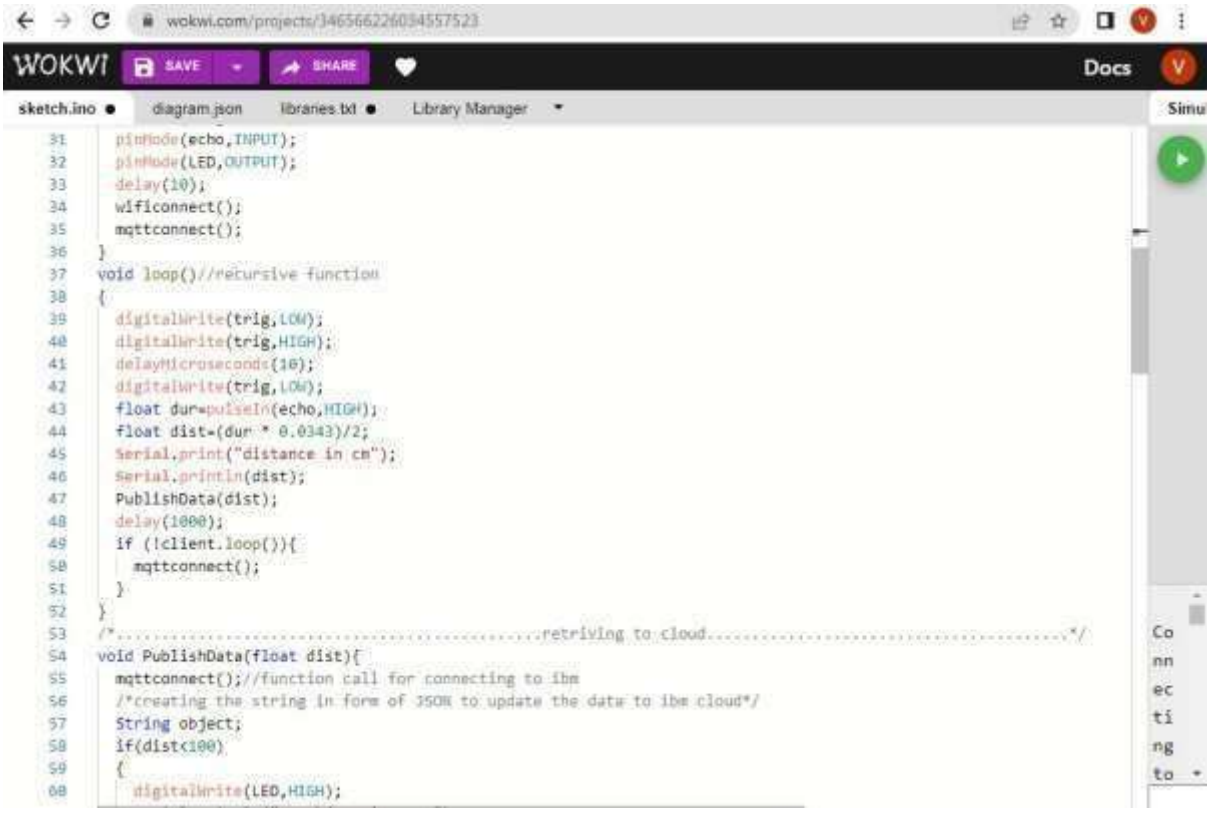
Write code and connections in wokwi for ultrasonic sensor.

Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

Upload document with wokwi share link and images of ibm cloud

Solution:




wokwi.com/projects/346566226034557523
WOKWI
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SHARE
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
Simu
pinMode(echo,INPUT);
pinMode(LED,OUTPUT);
delay(10);
wificonnect();
mqttconnect();
}
void loop()//recursive function
{
digitalWrite(trig,LOW);
digitalWrite(trig,HIGH);
delayMicroseconds(10);
digitalWrite(trig,LOW);
float dur=pulseIn(echo,HIGH);
float dist=(dur * 0.0343)/2;
Serial.print("distance in cm");
Serial.println(dist);
PublishData(dist);
delay(1000);
if (!client.loop()){
mqttconnect();
}
}
/*.....retriving to cloud.....*/
void PublishData(float dist){
mqttconnect();//function call for connecting to ibm
/*creating the string in form of JSON to update the data to ibm cloud*/
String object;
if(dist<100)
{
digitalWrite(LED,HIGH);
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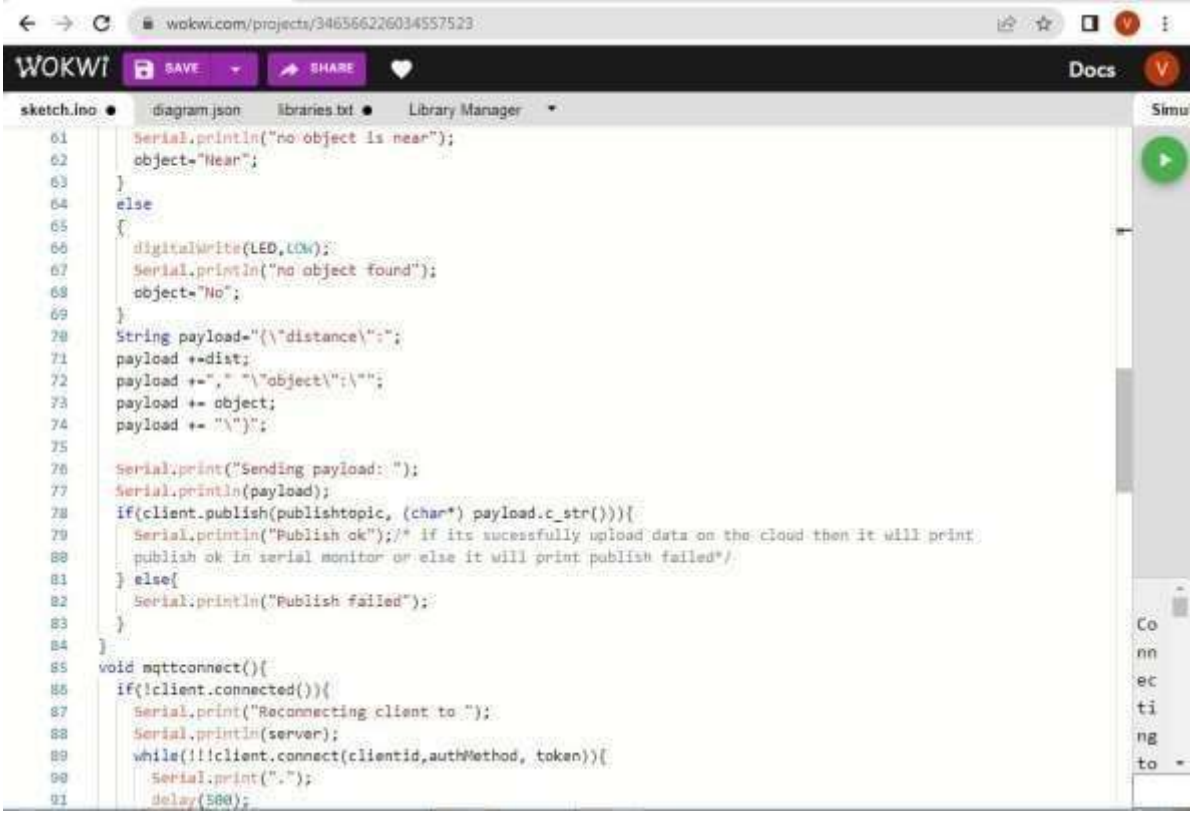
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Serial.println("no object is near");
object="Near";
}
else
{
digitalWrite(LED,LOW);
Serial.println("no object found");
object="No";
}
String payload="{\"distance\":";
payload +=dist;
payload +="," "\"object\":\"";
payload += object;
payload += "\"}";
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishtopic, (char*) payload.c_str())){
Serial.println("Publish ok");/* if its sucessfully upload data on the cloud then it will print
publish ok in serial monitor or else it will print publish failed*/
} else{
Serial.println("Publish failed");
}
}
void mqttconnect(){
if(!client.connected()){
Serial.print("Reconnecting client to ");
Serial.println(server);
while(!!client.connect(clientid,authMethod, token)){
Serial.print(".");
delay(500);
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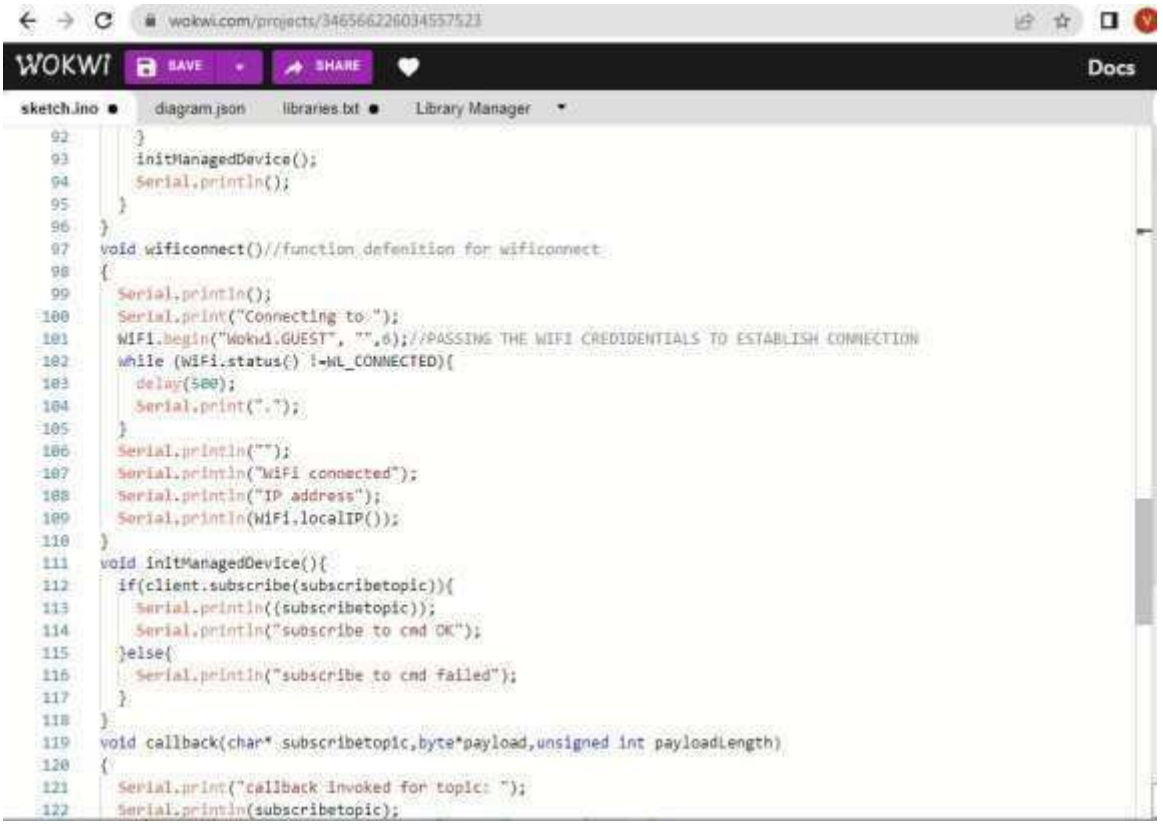
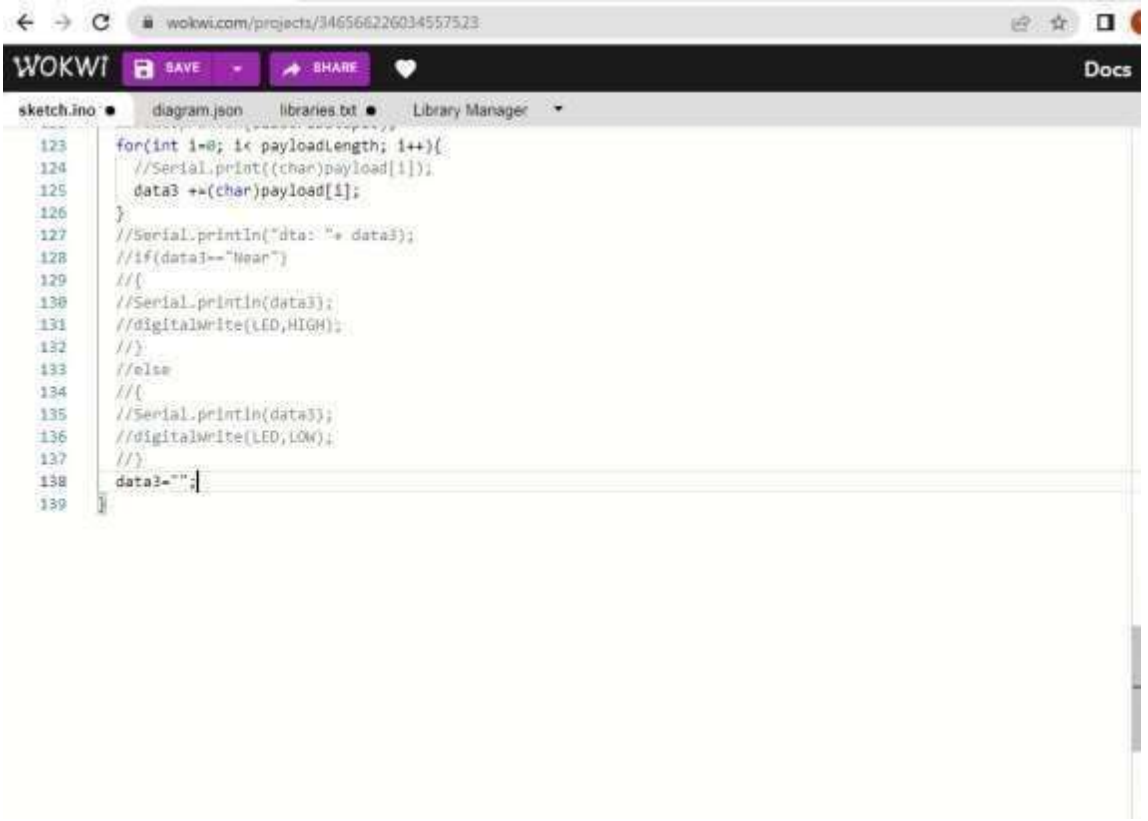
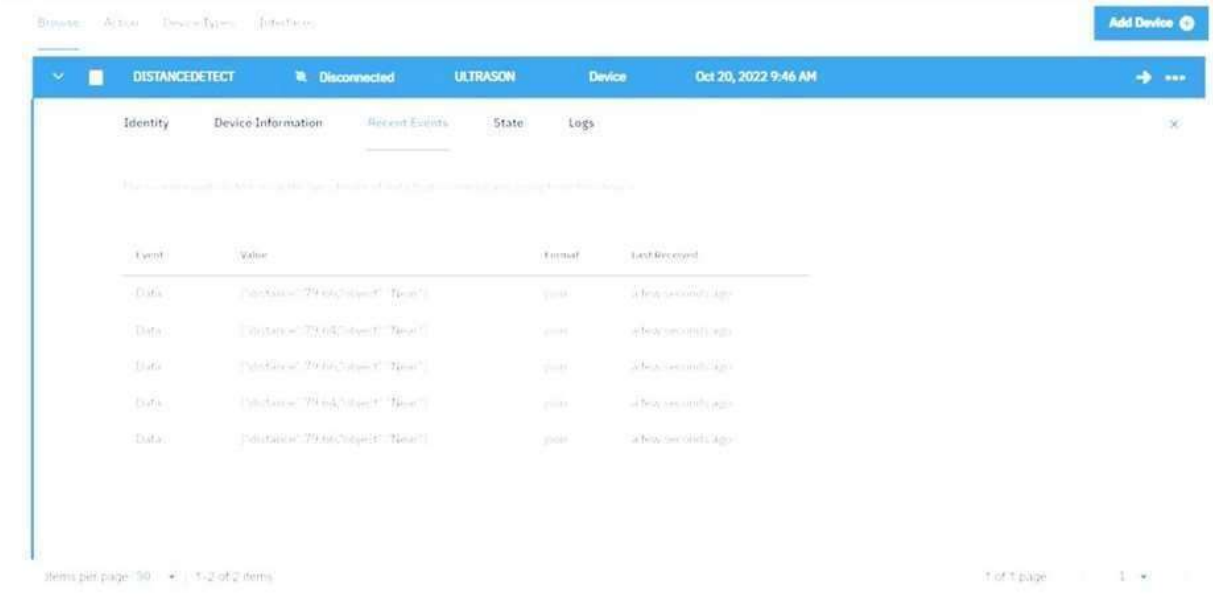




OUTPUT:

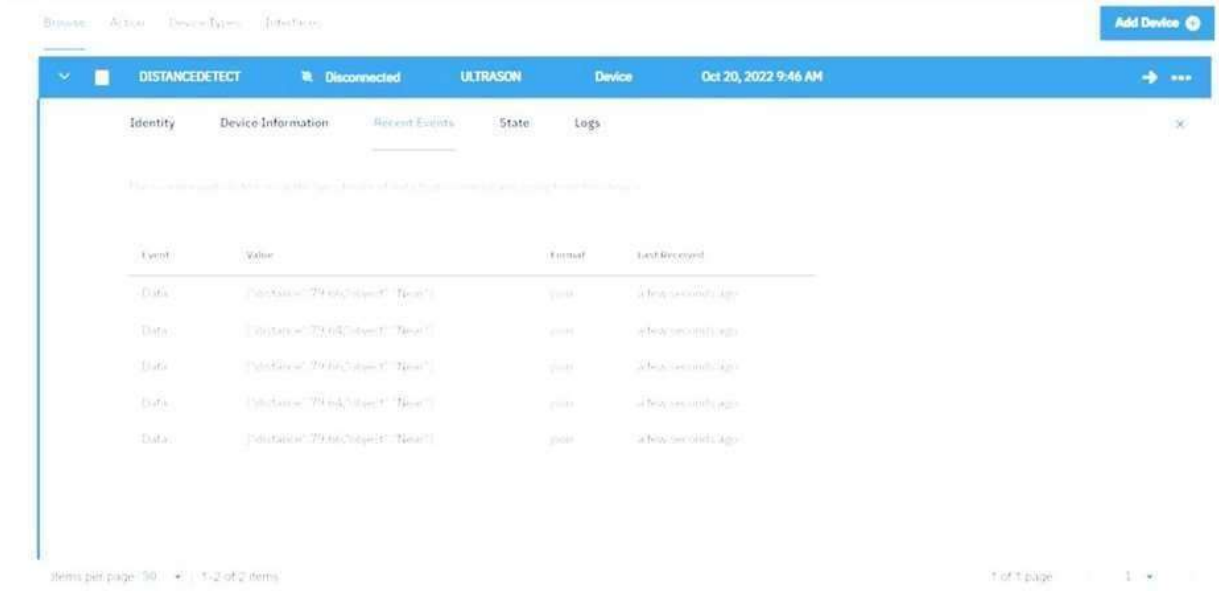
https://wokwi.com/projects/346572482591851092

DATA SENT TO IBM CLOUD ON NO OBJECT DETECTED



WHEN NO OBJECT DETECTED BY ULTRASONIC DETECTOR

DATA SENT TO IBM CLOUD ON OBJECT BEING DETECTED



WHEN OBJECT DETECTED BY ULTRASONIC DETECTOR SENSOR