**Assignment -4**

***Distance Detector using Ultrasonic Sensor***

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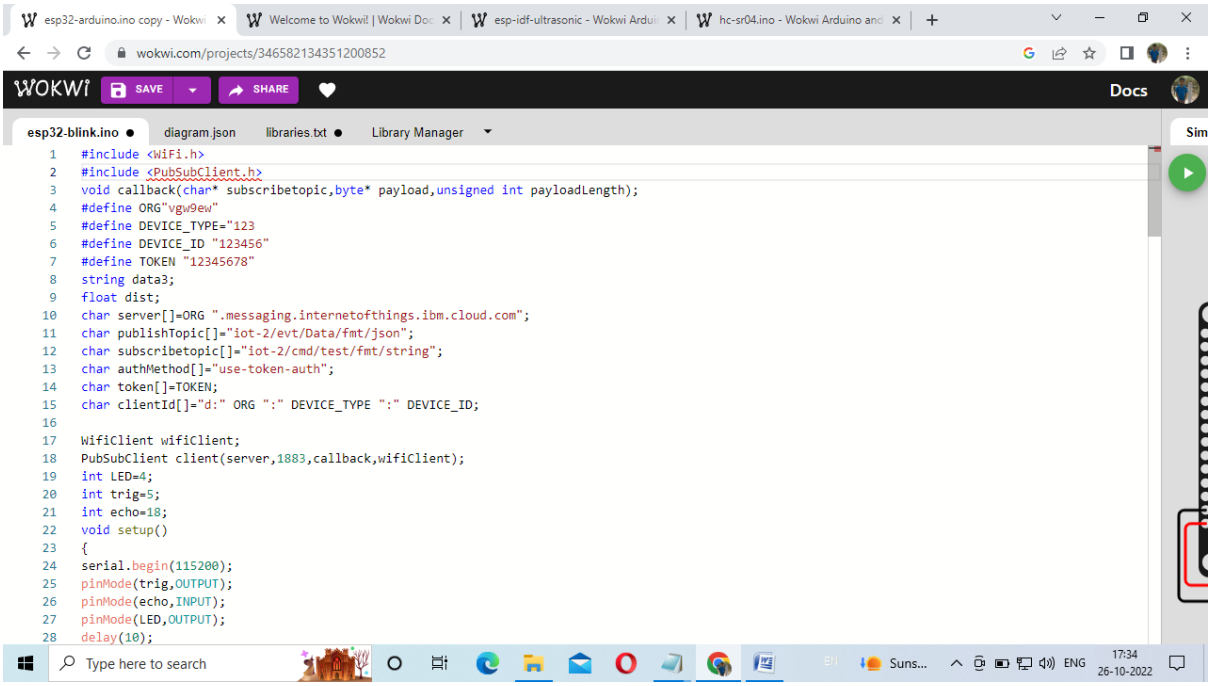
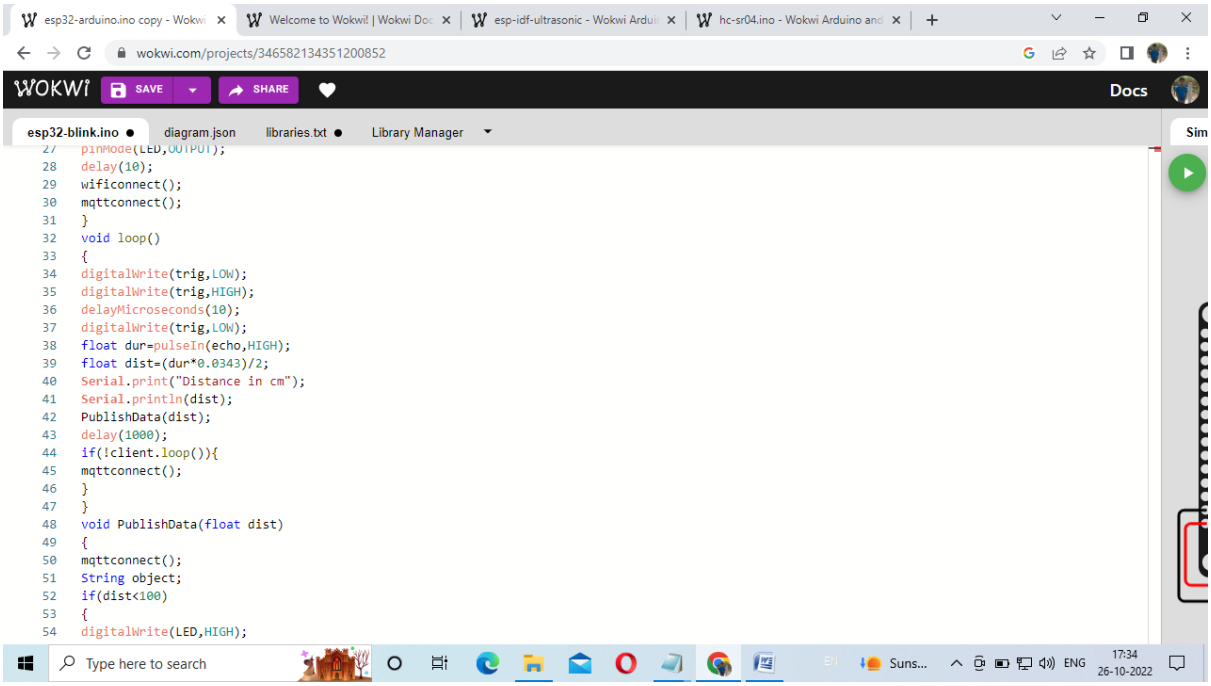
| Assignment Date | 26 September 2022 |
| Student Name | S.KRITHIK GOKUL |
| Student Roll Number | 811519106071 |
| Maximum Marks | 2 Marks |

**Question-1:**

Write code and Connection in wokwi for ultrasonic sensor.Whenever distance is less than 100 Cms send “alert” to ibm cloud and display in device recent events.

Wokwi Link: https://wokwi.com/projects/346582134351200852

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esp32-blink.ino
diagram.json
libraries.txt
Library Manager
pinMode(LED,OUTPUT);
delay(10);
wificonnect();
mqttconnect();
}
void loop()
{
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();
}
}
void PublishData(float dist)
{
mqttconnect();
String object;
if(dist<100)
{
digitalWrite(LED,HIGH);
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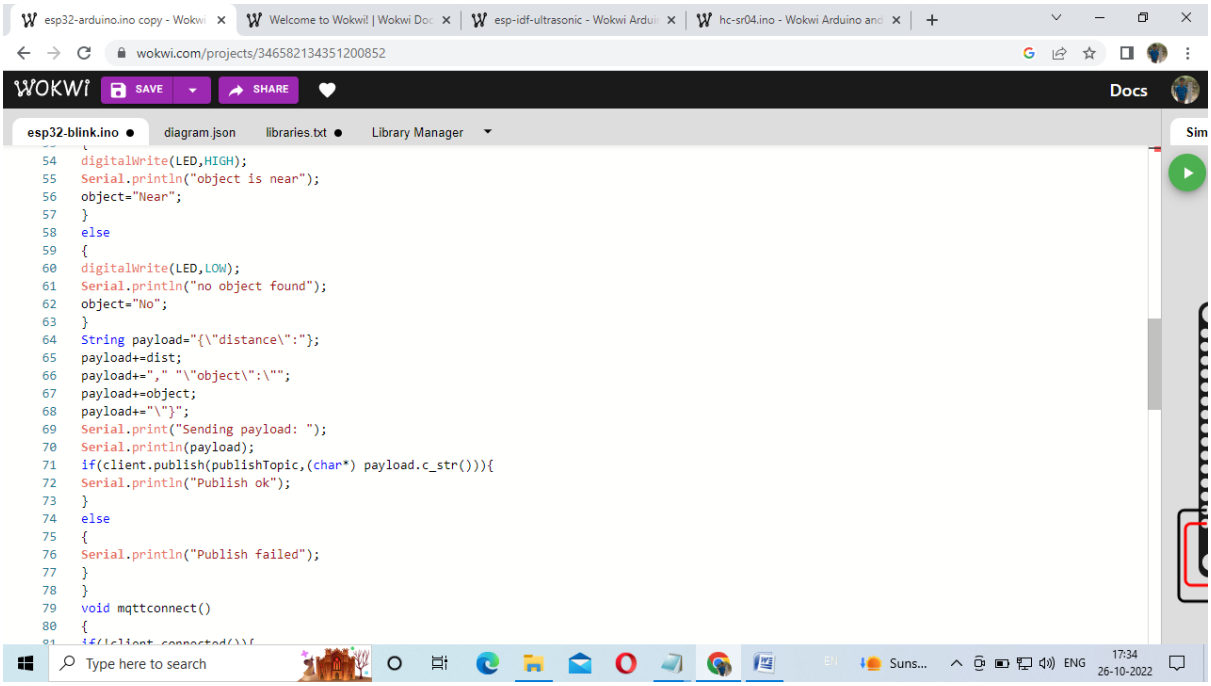
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digitalWrite(LED,HIGH);
Serial.println("object is near");
object="Near";
}
else
{
digitalWrite(LED,LOW);
Serial.println("no object found");
object="No";
}
String payload="{\"distance\":";
payload+=dist;
payload+="," "\"object\":\"";
payload+=object;
payload+="\"}";
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishTopic,(char*) payload.c_str())){
Serial.println("Publish ok");
}
else
{
Serial.println("Publish failed");
}
}
void mqttconnect()
{
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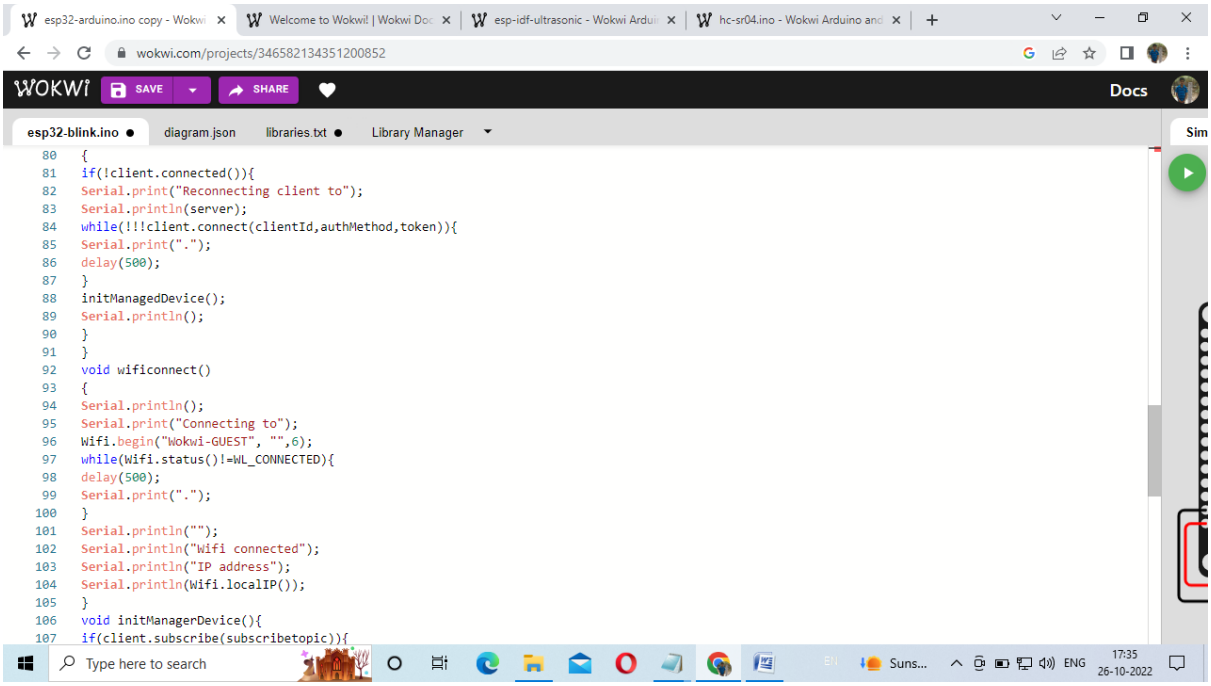
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Sim
{
if(!client.connected()){
Serial.print("Reconnecting client to");
Serial.println(server);
while(!!!client.connect(clientId,authMethod,token)){
Serial.print(".");
delay(500);
}
initManagedDevice();
Serial.println();
}
}
void wificonnect()
{
Serial.println();
Serial.print("Connecting to");
Wifi.begin("Wokwi-GUEST", "",6);
while(Wifi.status()!=WL_CONNECTED){
delay(500);
Serial.print(".");
}
Serial.println("");
Serial.println("Wifi connected");
Serial.println("IP address");
Serial.println(Wifi.localIP());
}
void initManagerDevice(){
if(client.subscribe(subscribetopic)){
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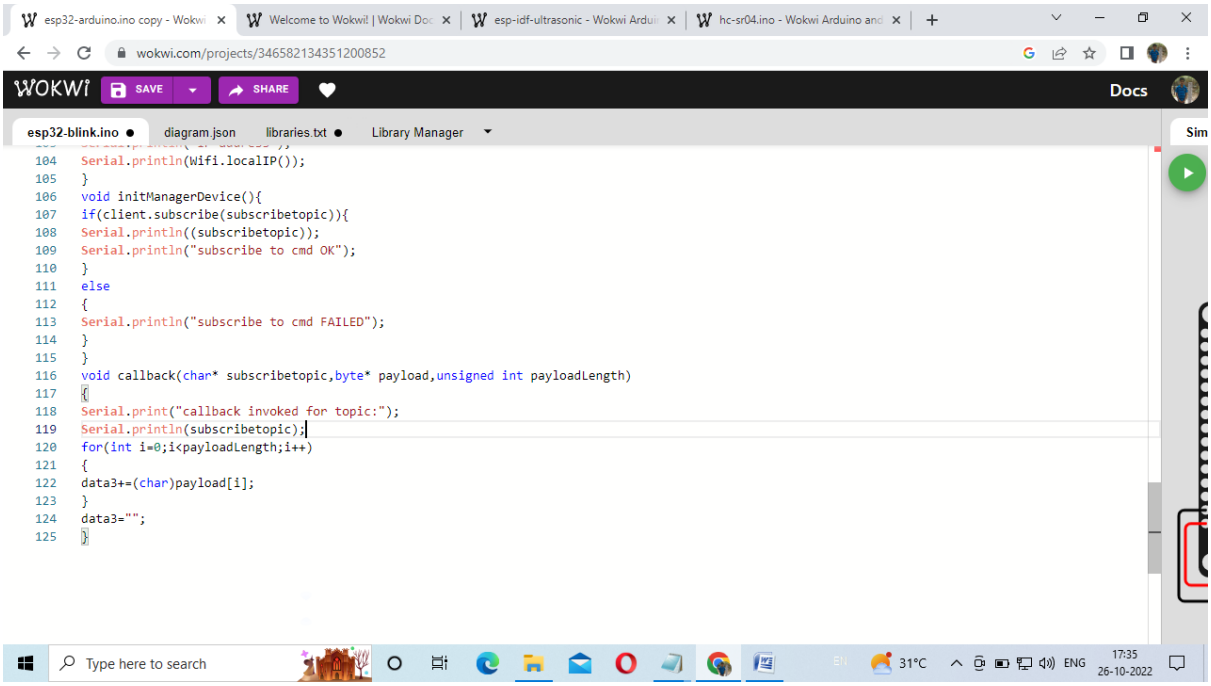
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Sim
Serial.println(Wifi.localIP());
}
void initManagerDevice(){
if(client.subscribe(subscribetopic)){
Serial.println((subscribetopic));
Serial.println("subscribe to cmd OK");
}
else
{
Serial.println("subscribe to cmd FAILED");
}
}
void callback(char* subscribetopic,byte* payload,unsigned int payloadLength)
{
Serial.print("callback invoked for topic:");
Serial.println(subscribetopic);
for(int i=0;i<payloadLength;i++)
{
data3+=(char)payload[i];
}
data3="";
}
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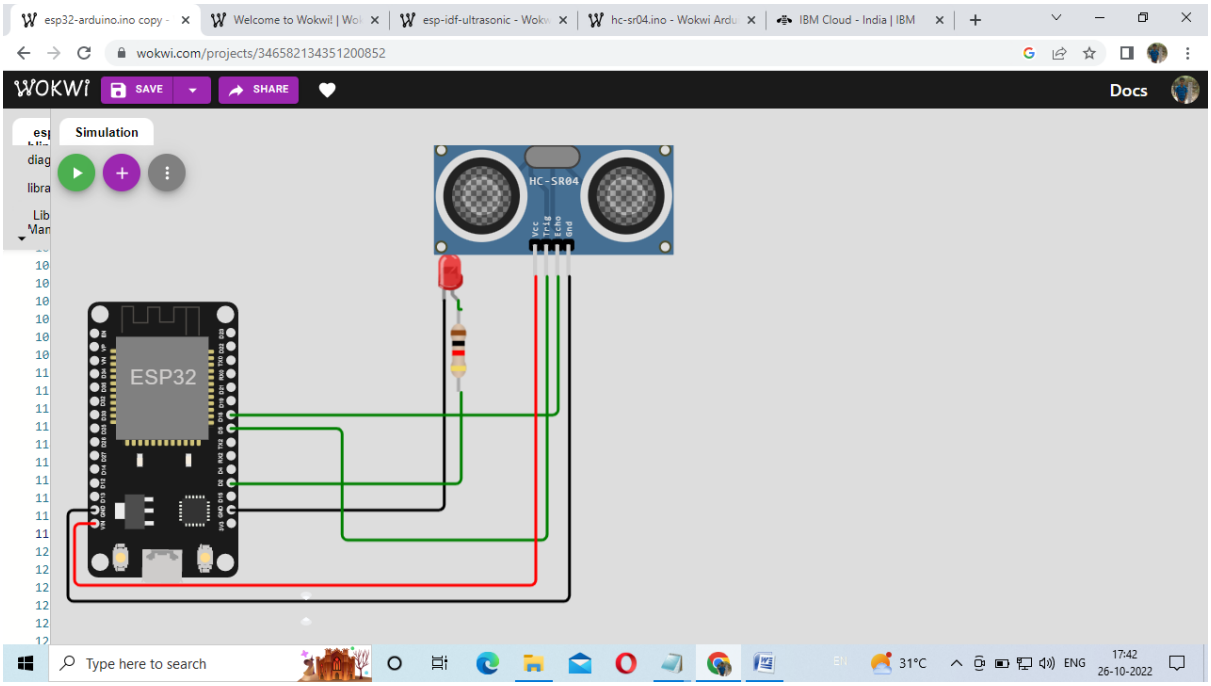


IBM WATSON APP ISSUES ONLY WOKWI SIMULATOR ATTACHED.