

Assignment -4
Python Programming

Assignment Date	27 October 2022
Student Name	Mr. GIRIDHARAN P
Student Roll Number	310619205030
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:

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wokwi.com/projects/346566226034557523

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WOKWI

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sketch.ino ▾ diagram.json libraries.txt ▾ Library Manager ▾

1 #include<WiFi.h> //library for wifi
2 #include<PubSubClient.h> //library for MQTT
3 void callback(char* subscribtopic, byte* payload, unsigned int payloadlength);
4 //-----credentials of IBM Account-----
5 #define ORG "iyy6o" // IBM ORGANIZATION ID
6 #define DEVICE_TYPE "iotedeviceproject" //DEVICE TYPE MENTIONED IN IOT WATSON PLATFORM
7 #define DEVICE_ID "229714" //DEVICE ID MENTIONED IN IOT WATSON PLATFORM
8 #define TOKEN "24681012" //Token
9 String data3;
10 float dist;
11 //-----customize the above value-----
12 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; //server name
13 char publishtopic[] = "ultrasonic/evt/Data/fmt/json"; //topic name and type of event perform
14 | and format in which data to be send*/
15 char subscribtopic[] = "ultrasonic/cmd/test/fmt/String"; //cmd REPRESENT Command type and
16 | COMMAND IS TEST OF FORMAT STRING*/
17 char authMethod[] = "use-token-auth"; //authentication method
18 char token[] = TOKEN;
19 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //CLIENT ID
20 //-----
21 WiFiClient wificlient; // creating an instance for wificlient
22 PubSubClient client(server, 1883, callback, wificlient); //calling the predefined client id
23 | by passing parameter like server id, port and wificredential*/
24 int LED = 4;
25 int trig = 5;
26 int echo = 18;
27 void setup()
28 {
29 Serial.begin(115200);
30 pinMode(trig, OUTPUT);

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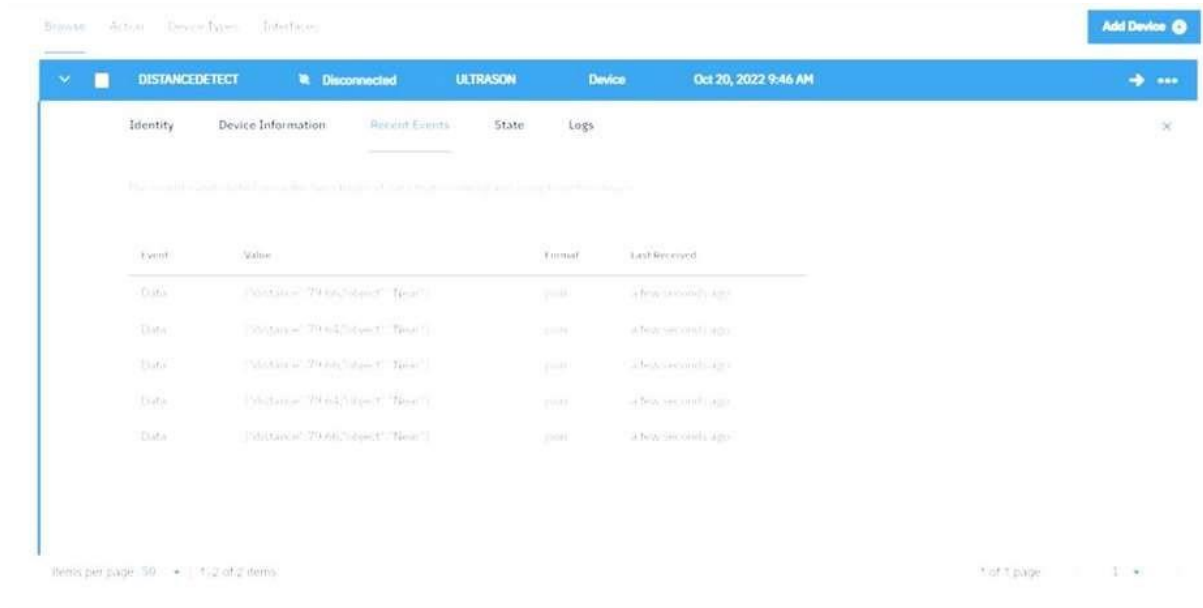
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sketch.ino ● diagram.json libraries.txt ● Library Manager

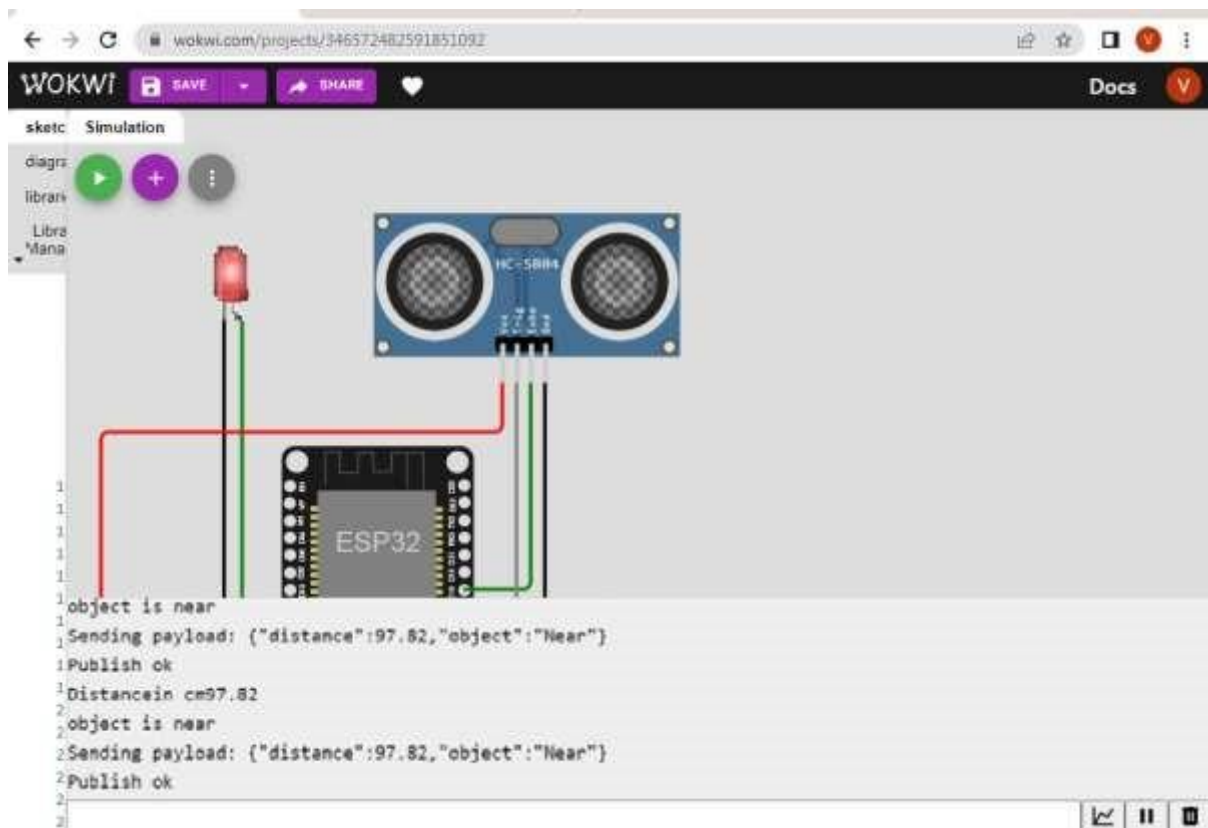
61Serial.println("no object is near");
62object="Near";
63}
64else
65{
66digitalWrite(LED,LOW);
67Serial.println("no object found");
68object="No";
69}
70String payload="{\"distance\":";
71payload +=dist;
72payload +=\",\" + \"\"object\"\":\";
73payload += object;
74payload += \"\"}\"";
75
76Serial.print("Sending payload: ");
77Serial.println(payload);
78if(client.publish(publishtopic, (char*) payload.c_str())){
79Serial.println("Publish ok");/* If its sucessfully upload data on the cloud then it will print
80publish ok in serial monitor or else it will print poblish failed*/
81}
82else{
83Serial.println("Publish failed");
84}
85
86void mqttconnect(){
87if(!client.connected()){
88Serial.print("Reconnecting client to ");
89Serial.println(server);
90while(!client.connect(clientid,authMethod, token)){
91Serial.print(".");
92delay(500);
93}94}95}96}97}98}99}100}101}102}103}104}105}106}107}108}109}110}111}112}113}114}115}116}117}118}119}120}121}122}123}124}125}126}127}128}129}130}131}132}133}134}135}136}137}138}139}140}141}142}143}144}145}146}147}148}149}150}151}152}153}154}155}156}157}158}159}160}161}162}163}164}165}166}167}168}169}170}171}172}173}174}175}176}177}178}179}180}181}182}183}184}185}186}187}188}189}190}191}192}193}194}195}196}197}198}199}200}201}202}203}204}205}206}207}208}209}210}211}212}213}214}215}216}217}218}219}220}221}222}223}224}225}226}227}228}229}230}231}232}233}234}235}236}237}238}239}240}241}242}243}244}245}246}247}248}249}250}251}252}253}254}255}256}257}258}259}260}261}262}263}264}265}266}267}268}269}270}271}272}273}274}275}276}277}278}279}280}281}282}283}284}285}286}287}288}289}290}291}292}293}294}295}296}297}298}299}300}301}302}303}304}305}306}307}308}309}310}311}312}313}314}315}316}317}318}319}320}321}322}323}324}325}326}327}328}329}330}331}332}333}334}335}336}337}338}339}340}341}342}343}344}345}346}347}348}349}350}351}352}353}354}355}356}357}358}359}360}361}362}363}364}365}366}367}368}369}370}371}372}373}374}375}376}377}378}379}380}381}382}383}384}385}386}387}388}389}390}391}392}393}394}395}396}397}398}399}400}401}402}403}404}405}406}407}408}409}410}411}412}413}414}415}416}417}418}419}420}421}422}423}424}425}426}427}428}429}430}431}432}433}434}435}436}437}438}439}440}441}442}443}444}445}446}447}448}449}450}451}452}453}454}455}456}457}458}459}460}461}462}463}464}465}466}467}468}469}470}471}472}473}474}475}476}477}478}479}480}481}482}483}484}485}486}487}488}489}490}491}492}493}494}495}496}497}498}499}500}501}502}503}504}505}506}507}508}509}510}511}512}513}514}515}516}517}518}519}520}521}522}523}524}525}526}527}528}529}530}531}532}533}534}535}536}537}538}539}540}541}542}543}544}545}546}547}548}549}550}551}552}553}554}555}556}557}558}559}560}561}562}563}564}565}566}567}568}569}570}571}572}573}574}575}576}577}578}579}580}581}582}583}584}585}586}587}588}589}590}591}592}593}594}595}596}597}598}599}600}601}602}603}604}605}606}607}608}609}610}611}612}613}614}615}616}617}618}619}620}621}622}623}624}625}626}627}628}629}630}631}632}633}634}635}636}637}638}639}640}641}642}643}644}645}646}647}648}649}650}651}652}653}654}655}656}657}658}659}660}661}662}663}664}665}666}667}668}669}670}671}672}673}674}675}676}677}678}679}680}681}682}683}684}685}686}687}688}689}690}691}692}693}694}695}696}697}698}699}700}701}702}703}704}705}706}707}708}709}710}711}712}713}714}715}716}717}718}719}720}721}722}723}724}725}726}727}728}729}730}731}732}733}734}735}736}737}738}739}740}741}742}743}744}745}746}747}748}749}750}751}752}753}754}755}756}757}758}759}760}761}762}763}764}765}766}767}768}769}770}771}772}773}774}775}776}777}778}779}780}781}782}783}784}785}786}787}788}789}790}791}792}793}794}795}796}797}798}799}800}801}802}803}804}805}806}807}808}809}810}811}812}813}814}815}816}817}818}819}820}821}822}823}824}825}826}827}828}829}830}831}832}833}834}835}836}837}838}839}840}841}842}843}844}845}846}847}848}849}850}851}852}853}854}855}856}857}858}859}860}861}862}863}864}865}866}867}868}869}870}871}872}873}874}875}876}877}878}879}880}881}882}883}884}885}886}887}888}889}890}891}892}893}894}895}896}897}898}899}900}901}902}903}904}905}906}907}908}909}910}911}912}913}914}915}916}917}918}919}920}921}922}923}924}925}926}927}928}929}930}931}932}933}934}935}936}937}938}939}940}941}942}943}944}945}946}947}948}949}950}951}952}953}954}955}956}957}958}959}960}961}962}963}964}965}966}967}968}969}970}971}972}973}974}975}976}977}978}979}980}981}982}983}984}985}986}987}988}989}990}991}992}993}994}995}996}997}998}999}1000}1001}1002}1003}1004}1005}1006}1007}1008}1009}1010}1011}1012}1013}1014}1015}1016}1017}1018}1019}1020}1021}1022}1023}1024}1025}1026}1027}1028}1029}1030}1031}1032}1033}1034}1035}1036}1037}1038}1039}1040}1041}1042}1043}1044}1045}1046}1047}1048}1049}1050}1051}1052}1053}1054}1055}1056}1057}1058}1059}1060}1061}1062}1063}1064}1065}1066}1067}1068}1069}1070}1071}1072}1073}1074}1075}1076}1077}1078}1079}1080}1081}1082}1083}1084}1085}1086}1087}1088}1089}1090}1091}1092}1093}1094}1095}1096}1097}1098}1099}1100}1101}1102}1103}1104}1105}1106}1107}1108}1109}1110}1111}1112}1113}1114}1115}1116}1117}1118}1119}1120}1121}1122}1123}1124}1125}1126}1127}1128}1129}1130}1131}1132}1133}1134}1135}1136}1137}1138}1139}1140}1141}1142}1143}1144}1145}1146}1147}1148}1149}1150}1151}1152}1153}1154}1155}1156}1157}1158}1159}1160}1161}1162}1163}1164}1165}1166}1167}1168}1169}1170}1171}1172}1173}1174}1175}1176}1177}1178}1179}1180}1181}1182}1183}1184}1185}1186}1187}1188}1189}1190}1191}1192}1193}1194}1195}1196}1197}1198}1199}1200}1201}1202}1203}1204}1205}1206}1207}1208}1209}1210}1211}1212}1213}1214}1215}1216}1217}1218}1219}1220}1221}1222}1223}1224}1225}1226}1227}1228}1229}1230}1231}1232}1233}1234}1235}1236}1237}1238}1239}1240}1241}1242}1243}1244}1245}1246}1247}1248}1249}1250}1251}1252}1253}1254}1255}1256}1257}1258}1259}1260}1261}1262}1263}1264}1265}1266}1267}1268}1269}1270}1271}1272}1273}1274}1275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When no object is detected



Event	Value	Format	Last Received
Data	[Distance: 79.66/object: "Near"]	json	a few seconds ago
Data	[Distance: 79.66/object: "Near"]	json	a few seconds ago
Data	[Distance: 79.66/object: "Near"]	json	a few seconds ago
Data	[Distance: 79.66/object: "Near"]	json	a few seconds ago
Data	[Distance: 79.66/object: "Near"]	json	a few seconds ago

When object is detected in ultrasonic detector



object is near
1 Sending payload: {"distance":97.82,"object":"Near"}
1 Publish ok
1 Distance in cm 97.82
2 object is near
2 Sending payload: {"distance":97.82,"object":"Near"}
2 Publish ok