# DeliveryofSprint-2

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| **PROJECTNAME** | SMARTWASTEMANAGEMENTFORMETROPOLITANCITIES-IOT |

**Code for Data Transfer fromSensors**

#include<WiFi.h> //libraryforwifi

#include<PubSubClient.h> // library forMQTT#include<LiquidCrystal\_I2C.h>

LiquidCrystal\_I2Clcd(0x27,20,4);

// credentialsofIBMAccounts

#defineORG"9gbe4w" //IBMorganisationid

#defineDEVICE\_TYPE"SWMSMC" //Devicetypementionedinibmwatsoniotplatform

#defineDEVICE\_ID"ibmproject" //DeviceIDmentionedinibmwatsoniotplatform#defineTOKEN"sUNA41tG6-Pq)0rk5X" //Token

// customiseabovevalues

charserver[]=ORG".messaging.internetofthings.ibmcloud.com"; //servernamecharpublishTopic[]="iot-2/evt/data/fmt/json";

chartopic[]="iot-2/cmd/led/fmt/String"; //cmdRepresenttypeand commandistestformatofstrings

charauthMethod[]="use-token-auth"; //authenticationmethodchartoken[]=TOKEN;charclientId[]="d:"ORG":"DEVICE\_TYPE":"DEVICE\_ID; //Clientid

//

WiFiClientwifiClient; //creatinginstanceforwificlientPubSubClientclient(server,1883,wifiClient);

#defineECHO\_PIN12

#define TRIG\_PIN 13floatdist;

voidsetup()

{

**Serial**.begin(115200);pinMode(LED\_BUILTIN,OUTPUT);pinMode(TRIG\_PIN,

OUTPUT

);pinMode(ECHO\_PIN,INPUT);

//pirpinpinMode(4,INPUT);

//ledpins pinMode(23,OUTPUT); pinMode(2,OUTPUT); pinMode(4,OUTPUT);

pinMode(15,OUTPUT);

lcd.init();lcd.backlight();lcd.setCursor(1,0);

lcd.print("");wifiConnect();mqttConnect();

}

floatreadcmCM()

{

digitalWrite(TRIG\_PIN, LOW);delayMicroseconds(2);digitalWrite(TRIG\_PIN, HIGH);delayMicroseconds(10);digitalWrite(TRIG\_PIN,LOW);intduration = pulseIn(ECHO\_PIN,HIGH);returnduration \*0.034/2;

}

voidloop()

{

lcd.clear();

publishData();delay(500);

if(!client.loop())

{

mqttConnect(); //functioncalltoconnecttoIBM

}

}

/\* retrievingtocloud \*/

voidwifiConnect()

{

**Serial**.print("Connecting to ");**Serial**.print("Wifi");WiFi.begin("Wokwi-GUEST","",6);

while(WiFi.status()!=WL\_CONNECTED)

{

delay(500);

**Serial**.print(".");

}

**Serial**.print("WiFiconnected,IPaddress:");

**Serial**.println(WiFi.localIP());

}

voidmqttConnect()

{

if(!client.connected())

{

**Serial**.print("ReconnectingMQTTclientto");**Serial**.println(server);while(!client.connect(clientId,authMethod, token))

{

**Serial**.print(".")

;delay(500);

}

initManagedDevice();

**Serial**.println();

}

}

voidinitManagedDevice()

{

if(client.subscribe(topic))

{

}

else

{

**Serial**.println("IBMsubscribetocmdOK");

**Serial**.println("subscribetocmdFAILED"

);

}

}

voidpublishData()

{

floatcm= readcmCM();

if(digitalRead(34)) //PIRmotiondetection

{

**Serial**.println("MotionDetected");**Serial**.println("Lid Opened");digitalWrite(15,HIGH);

}

else

{

digitalWrite(15,LOW);

}

if(digitalRead(34)==true)

{

if(cm<=100) //Binleveldetection

{

digitalWrite(2,HIGH);

**Serial**.println("HighAlert!!!,Trashbinisabouttobefull");

**Serial**.println("LidClosed"); lcd.print("Full!Don'tuse");delay(2000);

lcd.clear();digitalWrite(4,LOW);digitalWrite(23,LOW);

}

elseif(cm> 150&&cm<250)

{

digitalWrite(4,HIGH);

**Serial**.println("Warning!!,Trashisabouttocross50%ofbinlevel");digitalWrite(2,LOW); digitalWrite(23,LOW);

}

elseif(cm> 250 &&cm<=400)

{

digitalWrite(23,

HIGH

); **Serial**.println("Bin isavailable");digitalWrite(2,LOW);

digitalWrite(4,LOW);

}

delay(10000);

**Serial**.println("LidClosed");

}

else

{

**Serial**.println("Nomotiondetected");

}

if(cm<=100)

{

digitalWrite(21,HIGH);Stringpayload="{\"High

Alert!!\":\"";payload+=cm;payload

+="left\"}";

**Serial**.print("\n");**Serial**.print("Sendingpayload:

");**Serial**.println(payload);

if(client.publish(publishTopic,(char\*)payload.c\_str())) //ifdataisuploadedtocloudsuccessfully,printspublishokorprintspublishfailed

{

**Serial**.println("PublishOK");

}

}

if(cm<=250)

{

digitalWrite(22,HIGH);

Stringpayload="{\"Warning!!\":\"";payload+=dist; payload+="left\"

}";

**Serial**.print("\n");

**Serial**.print("Sending distance: "); **Serial**.println(cm);if(client.publish(publishTopic,(char\*)payload.c\_str()))

{

**Serial**.println("PublishOK");

}

else

{

**Serial**.println("PublishFAILED");

}

}

floatinches= (cm/2.54); //printon LCD

lcd.setCursor(0,0); lcd.print("Inches"); lcd.setCursor(4,0); lcd.setCursor(12,0); lcd.print("cm");lcd.setCursor(1,1); lcd.print(inches, 1); lcd.setCursor(11,1); lcd.print(cm, 1);lcd.setCursor(14,1);delay(1000);lcd.clear();

}

# ConnectionDiagram

