ASSIGNMENT-1

Er.Perumal Manimekalai College of

Engineering,Hosur

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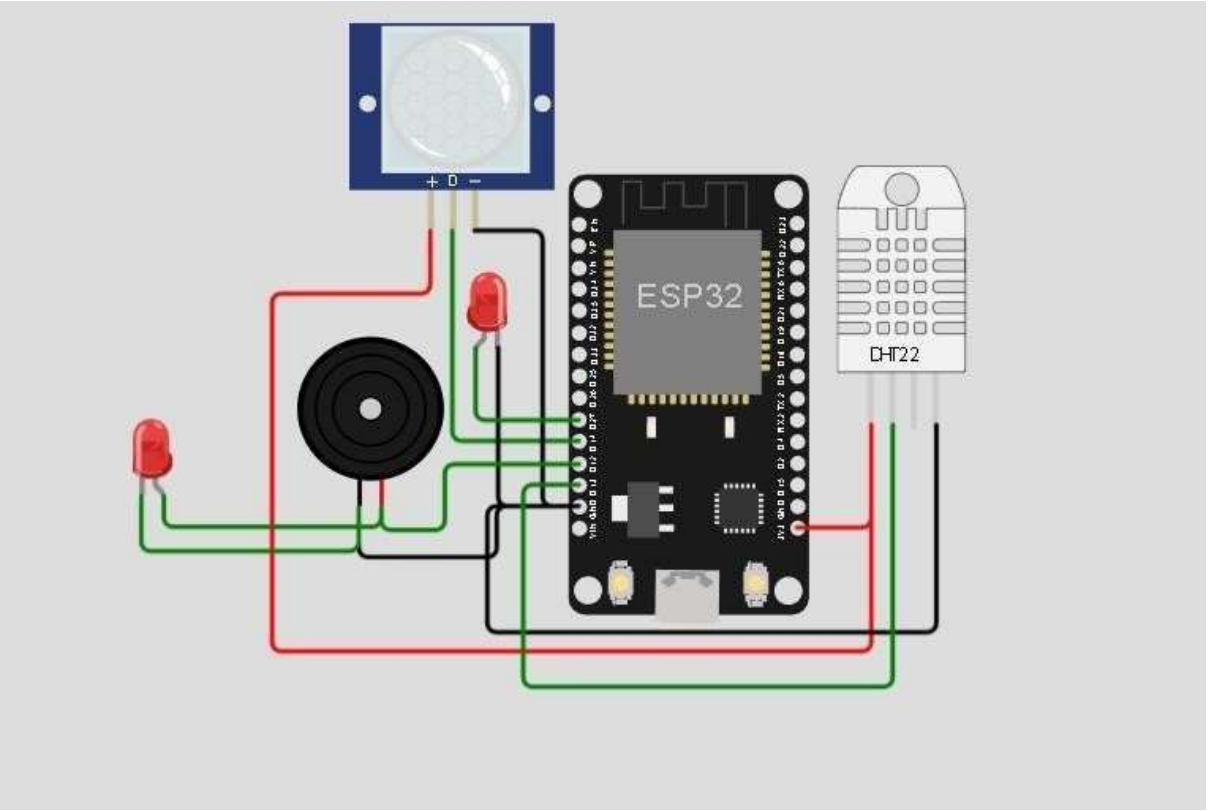
CLASS : 3 YEAR ECE

SUBJECT : IBM

REGISTER NO : 610820106014

Build a smart home in wokwi with minimum 2 sensors, Led, buzzer

DESIGN PART



CODING PART

sketch.ino

```
#include <FirebaseESP32.h> //call library firebase esp32
#include <WiFi.h> //call library wifi
#include "DHT.h" //call library dht

#define FIREBASE_HOST "https://smart-home-7b44f-default-rtdb.firebaseio.com" //declare variable as a firebase host
#define WIFI_SSID "Wokwi-GUEST" //declare variable as a wifi_ssid
#define WIFI_PASSWORD "" //declare variable as a wifi password
```

```
#define FIREBASE_Authorization_key
"oTRPje2my9ROlP2dIhJMzEd66sd3arqmtC4WG6cv"
//declare variable as a firebase auth key
FirebaseData firebaseData; //Define the FirebaseData object as
firebaseData
FirebaseJson json; //Define the FirebaseJson as json

int led = 27; //declare variable as a integer String message
= ""; //declare variable as a string
String message1 = ""; //declare variable as a string
String s_pir = ""; //declare variable as a string
String b = ""; //declare varible as a string String
c = ""; //declare variable as a string bool a = 0;
//declare variable as a boolean #define pir 14
//declare variable as a pin pir
#define buzzer 12 //declare variable as a pin buzzer
#define DHTPIN 13 //declare variable as a pin dht
#define DHTTYPE DHT22 //declare variable as a dht11  DHT
dht(DHTPIN, DHTTYPE); //connect esp32 to dht


void setup() {
 pinMode(led, OUTPUT); //led as an output pinMode(pir,
 INPUT); //pir as an input
 pinMode(buzzer, OUTPUT); //buzzer as an output
 Serial.begin(115200); //open serial connection  dht.begin();
 //initiate the connection with the dht
 WiFi.begin (WIFI_SSID, WIFI_PASSWORD); //initiate the
connection with ap
 Serial.println("Connecting..."); //serial print monitor
connecting
```

```
 //if wifi not connect serial print monitor not connected while
 (WiFi.status() != WL_CONNECTED) {
 Serial.println("NOT CONNECTED"); delay(300);
   } b = WIFI_SSID; //define varible b like variable wifi_ssid
 Serial.println();
 Serial.print("IP Address: "); //serial print monitor ip address:
Serial.println(WiFi.localIP()); //serial print monitor wifi local ip
 Serial.println();

Firebase.begin(FIREBASE_HOST,FIREBASE_Authorization_
key); //iniatite the connection with firebase }

void loop() {
 bool state_pir = digitalRead(pir); //declare variable state_pir as
a digital read pir sensor (boolean)

 //get string firebase data led
 if (Firebase.getString(firebaseData,
 "/ESP32APP_LED/LED"))
{
   String message_fb = firebaseData.stringData();
   if (message_fb != message) {
     message = message_fb;
     if(message.indexOf("LED ON") != -1){digitalWrite(led,
HIGH);} if(message.indexOf("LED OFF") != -
     1){digitalWrite(led,
LOW);}
     }
   }
```

```
 //get string firebase data set status motion sensor if
(Firebase.getString(firebaseData,
"/ESP32APP_MOTION/ALARM_SET")) {
   String message1_fb = firebaseData.stringData();
   if (message1_fb != message1) {
     message1 = message1_fb;
     if(message1.indexOf("ALARM SET ON") != -
     1){ a=1; s_pir = "READY";
       } if(message1.indexOf("ALARM SET OFF") != -
     1){  digitalWrite(buzzer,
      LOW);
      s_pir = "OFF"; a=0;
      }
     }
   }


 //condition pir sensor if detect object if
 (state_pir==1 && a==1){ digitalWrite(buzzer,
 HIGH);
   s_pir = "THIEFFFF";
   }

 //declare variable hum as a dht read humidity(%) and
temperature (c)
 float hum = dht.readHumidity(); float temp
 =  dht.readTemperature();    //condition  dht
 sensor if not connect with esp32 if
 (isnan(hum) || isnan(temp)  ){
   Serial.println(F("Failed to read from DHT sensor!"));
   c = "FAILED";
```

```
  } else
 {
  c= "READY";
  }

 Serial.print("Temperature: "); //serial print monitor
temperature:
 Serial.print(temp); //serial print monitor value temperature
 Serial.print("°C"); //serial print monitor °C
 Serial.print(" Humidity: "); //serial print monitor humidity:
 Serial.print(hum); //serial print monitor value humidity
 Serial.print("%"); //serial print monitor %
 Serial.print(" ");
 Serial.print(message); //serial print monitor value massage
 Serial.print(" ");
 Serial.print(message1); //serial print monitor value massage1
 Serial.print(" ");
 Serial.print(s_pir); //serial print monitor value s_pir
 Serial.println();
 Firebase.setFloat(firebaseData,
"/ESP32APP_DHT11/TEMPERATURE", temp); //firebase
data set float value temperature
 Firebase.setFloat(firebaseData,
"/ESP32APP_DHT11/HUMIDITY", hum); //firebase data set
float value humidity
 Firebase.setString(firebaseData,
 "/ESP32APP_DHT11/STATUS", c); //firebase data set string
 value c
 Firebase.setString(firebaseData,
```

"/ESP32APP_MOTION/BUZZER", s_pir); //firebase data set string value s_pir
 Firebase.setString(firebaseData, "/ESP32APP_WIFI/STATUS", b); //firebase data set string value b
 delay(200); //delay 200 ms }

```
#include <FirebaseESP32.h> //call library firebase esp32
#include <WiFi.h> //call library wifi
#include "DHT.h" //call library dht

#define FIREBASE_HOST "https://smart-home-7b44f-default-rtdb.firebaseio.com" //declare variable as a firebase host
#define WIFI_SSID "Wokwi-GUEST" //declare variable as a wifi_ssid
#define WIFI_PASSWORD "" //declare variable as a wifi password
#define FIREBASE_Authorization_key "oTRPje2my9ROlP2dIhJMzEd66sd3arqmtC4WG6cv" //declare variable as a firebase auth key
FirebaseData firebaseData; //Define the FirebaseData object as firebaseData
FirebaseJson json; //Define the FirebaseJson as json

int led = 27; //declare variable as a integer String message = ""; //declare variable as a string  String message1 = ""; //declare variable as a string
String s_pir = ""; //declare variable as a string
```

```
String b = ""; //declare varible as a string String
c = ""; //declare variable as a string bool a = 0;
//declare variable as a boolean #define pir 14
//declare variable as a pin pir
#define buzzer 12 //declare variable as a pin buzzer
#define DHTPIN 13 //declare variable as a pin dht
#define DHTTYPE DHT22 //declare variable as a dht11 DHT
dht(DHTPIN, DHTTYPE); //connect esp32 to dht

void setup() {
 pinMode(led, OUTPUT); //led as an output pinMode(pir,
 INPUT); //pir as an input
 pinMode(buzzer, OUTPUT); //buzzer as an output
 Serial.begin(115200); //open serial connection  dht.begin();
 //initiate the connection with the dht
 WiFi.begin (WIFI_SSID, WIFI_PASSWORD); //initiate the
connection with ap
 Serial.println("Connecting..."); //serial print monitor
connecting
 //if wifi not connect serial print monitor not connected
 while (WiFi.status() != WL_CONNECTED) {
 Serial.println("NOT CONNECTED"); delay(300);
   } b = WIFI_SSID; //define varible b like variable wifi_ssid
 Serial.println();
 Serial.print("IP Address: "); //serial print monitor ip address:
Serial.println(WiFi.localIP()); //serial print monitor wifi local ip
 Serial.println();
 Firebase.begin(FIREBASE_HOST,FIREBASE_Authorization
 _
key); //iniatite the connection with firebase }
```

```
void loop() {
 bool state_pir = digitalRead(pir); //declare variable state_pir as
a digital read pir sensor (boolean)

 //get string firebase data led if
 (Firebase.getString(firebaseData, "/ESP32APP_LED/LED"))
{
   String message_fb = firebaseData.stringData();
   if (message_fb != message) {
     message = message_fb;
     if(message.indexOf("LED ON") != -1){digitalWrite(led,
HIGH);} if(message.indexOf("LED OFF") != -
     1){digitalWrite(led,
LOW);}
     }
   }

 //get string firebase data set status motion sensor if
(Firebase.getString(firebaseData,
"/ESP32APP_MOTION/ALARM_SET")) {
   String message1_fb = firebaseData.stringData(); if
   (message1_fb != message1) {  message1
     = message1_fb;
     if(message1.indexOf("ALARM SET ON") != -1){
       a=1;  s_pir = "READY";
       } if(message1.indexOf("ALARM SET OFF") != -
     1){  digitalWrite(buzzer,
       LOW);
       s_pir = "OFF"; a=0;
```

```
      }
    }
  }

 //condition pir sensor if detect object if
 (state_pir==1 && a==1){ digitalWrite(buzzer,
 HIGH);
   s_pir = "THIEFFFF";
   }

 //declare variable hum as a dht read humidity(%) and
temperature (c)
 float hum = dht.readHumidity(); float
 temp = dht.readTemperature();

 //condition dht sensor if not connect with esp32 if
 (isnan(hum) || isnan(temp)  ){
   Serial.println(F("Failed to read from DHT sensor!"));  c
   = "FAILED";
   } else
 {
   c= "READY";
   }
 Serial.print("Temperature: "); //serial print monitor
temperature:
 Serial.print(temp); //serial print monitor value temperature
 Serial.print("°C"); //serial print monitor °C
 Serial.print(" Humidity: "); //serial print monitor humidity:
 Serial.print(hum); //serial print monitor value humidity
 Serial.print("%"); //serial print monitor %
```

```
 Serial.print(" ");
 Serial.print(message); //serial print monitor value massage
 Serial.print(" ");
 Serial.print(message1); //serial print monitor value massage1
 Serial.print(" ");
 Serial.print(s_pir); //serial print monitor value s_pir
 Serial.println();

 Firebase.setFloat(firebaseData,
"/ESP32APP_DHT11/TEMPERATURE", temp); //firebase
data set float value temperature
 Firebase.setFloat(firebaseData,
"/ESP32APP_DHT11/HUMIDITY", hum); //firebase data set
float value humidity
 Firebase.setString(firebaseData,
"/ESP32APP_DHT11/STATUS", c); //firebase data set string
value c
 Firebase.setString(firebaseData,
"/ESP32APP_MOTION/BUZZER", s_pir); //firebase data set
string value s_pir
 Firebase.setString(firebaseData,
"/ESP32APP_WIFI/STATUS", b); //firebase data set string
value b
 delay(200); //delay 200 ms
}
```

diagram.json


```
{
  "version": 1,
  "author": "chandra kirana",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": 0,
"left": 0, "attrs": {} },
    {
      "type": "wokwi-dht22",
      "id": "dht1",  "top":
      -2.08,
      "left": 119.41,
      "attrs": { "temperature": "30.1", "humidity": "29" }
    },
    {
      "type": "wokwi-led",
      "id": "led1",
      "top": 36.62,
      "left": -55.84,
      "attrs": { "color": "red", "flip": "1" }
    },
    {
      "type": "wokwi-pir-motion-sensor",
      "id": "pir1",
      "top": -65.32,
      "left": -97.06,
      "attrs": {} },
```

```
    {
      "type": "wokwi-buzzer",
      "id": "bz1",
      "top": 65.51,
      "left": -119.56,
      "attrs": { "volume": "0.1" }
    },
    {
      "type": "wokwi-led",
      "id": "led2",
      "top": 102.36,
      "left": -203.89,
      "attrs": { "color": "red", "flip": "" } }
  ],
  "connections": [
    [ "esp:TX0", "$serialMonitor:RX", "", [] ],
    [ "esp:RX0", "$serialMonitor:TX", "", [] ],
    [ "dht1:VCC", "esp:3V3", "red", [ "v0" ] ],
    [ "pir1:OUT", "esp:D14", "green", [ "v0" ] ],
    [ "pir1:GND", "esp:GND.2", "black", [ "h30.28", "v122.32" ]
],
    [ "esp:GND.2", "led1:C", "black", [ "h0" ] ],
    [ "pir1:VCC", "dht1:VCC", "red", [ "v27.99", "h-70.08",
"v158.75", "h261.03" ] ],
    [ "bz1:2", "esp:D12", "green", [ "v10.06", "h28.07", "v-
29.68" ] ],
    [ "esp:GND.2", "bz1:1", "black", [ "h-36.45", "v22.63", "h-
58.84" ] ],
    [ "dht1:GND", "esp:GND.2", "black", [ "v92.14", "h-
198.86", "v-55.96" ] ],
```

```
    [ "led1:A", "esp:D27", "green", [ "v0" ] ],
    [ "dht1:SDA", "esp:D13", "green", [ "v116.37", "h-163.6",
"v-91.7" ] ],
    [ "bz1:1", "led2:C", "green", [ "v19.44", "h-99.3" ] ],
    [ "led2:A", "bz1:2", "green", [ "v13.82", "h100.85" ] ]
  ],
  "dependencies": {} }
```