

NAAN MUDHALVAN – PROFESSIONAL READINESS FOR INNOVATION, EMPLOYMENT AND ENTREPRENEURSHIP

ASSIGNMENT – 1

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|------------------------|---------------------|
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QUESTION:

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

→ Example: pir sensor for home security, servo motor for door lock system.

→ Hint: replicate tinkercad code and connections in wokwi and integrate

both codes to a single code.

LINK:

<https://wokwi.com/projects/364513583711177729>

CODE:

```
#define BLYNK_TEMPLATE_ID "TMPLgCeV0y1b"
#define BLYNK_DEVICE_NAME "Home"
#define BLYNK_AUTH_TOKEN "93h-1b23ewIQooDTdB2y2COGacfYkbd0"

#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 20, 4);

#define BLYNK_PRINT Serial

#include <WiFi.h>
#include <WiFiClient.h>
#include <BlynkSimpleEsp32.h>
#include "DHTesp.h"

BlynkTimer timer;

char auth[] = BLYNK_AUTH_TOKEN;

char ssid[] = "Wokwi-GUEST";
char pass[] = "";
int val = 0, va1,va2,va3,va4,va5,ge, t =15 ;
float tmp,hum = 0;

int ledPin = 33;
int inputPin = 27;
int pirState,k;
int v = 0;

//temp symbol
byte t1[8]={B00000, B00001, B00010, B00100, B00100, B00100, B00100, B00111,};
byte t2[8]={B00111, B00111, B00111, B01111,B11111, B11111, B01111, B00011,};
byte t3[8]={B00000, B10000, B01011, B00100, B00111, B00100, B00111, B11100,};
byte t4[8]={B11111, B11100, B11100, B11110,B11111, B11111, B11110, B11000,};

//humidity symbol
byte hum1[8]={B00000, B00001, B00011, B00011,B00111, B01111, B01111, B11111,};
byte hum2[8]={B11111, B11111, B11111, B01111,B00011, B00000, B00000, B00000,};
byte hum3[8]={B00000, B10000, B11000, B11000, B11100, B11110, B11110,
B11111,};
byte hum4[8]={B11111, B11111, B11111, B11110, B11100, B00000, B00000,
B00000,};
```

```
//Home Symbol
byte house1[8]={B00000, B00001, B00011, B00011, B00111, B01111, B01111,
B11111,};
byte house2[8]={B11111, B11111, B11100, B11100, B11100, B11100, B11100,
B11100,};
byte house3[8]={B00000, B10010, B11010, B11010, B11110, B11110, B11110,
B11111,};
byte house4[8]={B11111, B11111, B11111, B10001, B10001, B10001, B11111,
B11111,};

byte d[8] = { 0b00011,0b00011,0b00000,0b00000,0b00000,0b00000,0b00000,0b00000
};

byte Lck[] = { B01110, B10001, B10001, B11111, B11011, B11011, B11111, B00000
};
```

```
DHTesp temps;
```

```
BLYNK_WRITE(V0){
  va1 = param.asInt();
  digitalWrite(5, va1);
```

```
}
BLYNK_WRITE(V1){
  va2 = param.asInt();
  digitalWrite(18, va2);
}
```

```
BLYNK_WRITE(V2){
  va3 = param.asInt();
  digitalWrite(19, va3);
}
```

```
BLYNK_WRITE(V3){
  va4 = param.asInt();
  digitalWrite(4, va4);
}
```

```
BLYNK_WRITE(V4){
  va5 = param.asInt();
  digitalWrite(2, va5);
}
```

```
BLYNK_WRITE(V7) {
  pirState = param.asInt();
  if(pirState == 0){
    digitalWrite(ledPin, LOW);
    k = 1;
```

```

        ge = 0;
    }
    else {
        digitalWrite(ledPin, HIGH);
        k= 0;
        ge = 1;
    }
}

void myTimer()
{
    Blynk.virtualWrite(V5,tmp);
    Blynk.virtualWrite(V6,hum);
}

void setup()
{
    Serial.begin(115200);
    Blynk.begin(auth, ssid, pass);

    pinMode(5, OUTPUT);
    pinMode(18, OUTPUT);
    pinMode(19, OUTPUT);
    pinMode(4, OUTPUT);
    pinMode(23,INPUT);
    pinMode(2,OUTPUT);
    temps.setup(t, DHTesp::DHT22);
    pinMode(ledPin, OUTPUT);
    pinMode(inputPin, INPUT_PULLUP);

    lcd.init();
    lcd.backlight();

    digitalWrite(5, LOW);
    digitalWrite(18, LOW);
    digitalWrite(19, LOW);
    digitalWrite(21, LOW);

    lcd.setCursor(0,0);
    lcd.print("CircuitDesignContest");
    lcd.setCursor(8,1);
    lcd.print("2022");
    lcd.setCursor(0,2);
    lcd.print("-----");
    lcd.setCursor(9,3);
    lcd.print("- eDiYLaBs");

```

```

delay(3000);
lcd.clear();
lcd.createChar(6, Lck);
lcd.createChar(1,house1);
lcd.createChar(2,house2);
lcd.createChar(3,house3);
lcd.createChar(4,house4);
lcd.setCursor(1,2);
lcd.write(1);
lcd.setCursor(1,3);
lcd.write(2);
lcd.setCursor(2,2);
lcd.write(3);
lcd.setCursor(2,3);
lcd.write(4);

lcd.setCursor(17,2);
lcd.write(1);
lcd.setCursor(17,3);
lcd.write(2);
lcd.setCursor(18,2);
lcd.write(3);
lcd.setCursor(18,3);
lcd.write(4);

lcd.setCursor(19,0);
lcd.write(6);
lcd.setCursor(9,0);
lcd.print("connected-");
lcd.setCursor(2,1);
lcd.print("HOME AUTOMATION");
lcd.setCursor(6,2);
lcd.print("USING IOT");
delay(3000);

Blynk.virtualWrite(V7, pirState);
timer.setInterval(1000L, myTimer);

}

```

```

void loop()
{
  Blynk.run();
  timer.run();
  val = digitalRead(23);
  if(val == 1)
  {

```

```

        digitalWrite(2,va5);
    }

else{
    digitalWrite(2,LOW);
}

TempAndHumidity x = temps.getTempAndHumidity();
tmp = x.temperature ;
hum = x.humidity ;

v = digitalRead(inputPin);
if (v == HIGH) {
    if (k == 1) {
        digitalWrite(ledPin, LOW);
        k = 0 ;
        ge = 0;
    }
    else if (k == 0) {
        digitalWrite(ledPin, HIGH);
        k = 1;
        ge = 1;
    }
}

if (va1 == 1){
    lcd.clear();
    lcd.setCursor(19,0);
    lcd.write(6);
    lcd.setCursor(0, 1);
    lcd.print("SW_1= ");
    lcd.print("ON ");
}
else{
    lcd.clear();
    lcd.setCursor(19,0);
    lcd.write(6);
    lcd.setCursor(0, 1);
    lcd.print("SW_1= ");
    lcd.print("OFF");
}
if (va2 == 1){

    lcd.setCursor(11, 1);
    lcd.print("SW_2= ");
    lcd.print("ON ");
}

```

```

else{
    lcd.setCursor(11, 1);
    lcd.print("SW_2= ");
    lcd.print("OFF");
}
if (va3 == 1){

    lcd.setCursor(0, 2);
    lcd.print("SW_3= ");
    lcd.print("ON ");
}
else{

    lcd.setCursor(0, 2);
    lcd.print("SW_3= ");
    lcd.print("OFF");
}
if (va4 == 1){

    lcd.setCursor(11, 2);
    lcd.print("SW_4= ");
    lcd.print("ON ");
}
else{

    lcd.setCursor(11, 2);
    lcd.print("SW_4= ");
    lcd.print("OFF");
}
    if (va5 == 1){

        lcd.setCursor(0, 3);
        lcd.print("OD_L= ");
        lcd.print("ON ");
    }
    else{

        lcd.setCursor(0, 3);
        lcd.print("OD_L= ");
        lcd.print("OFF");
    }
    if (ge == 1){

        lcd.setCursor(11, 3);
        lcd.print("WR_L= ");
        lcd.print("ON ");
    }
    else{

```



```

        lcd.setCursor(11, 3);
    lcd.print("WR_L= ");
    lcd.print("OFF");
}
delay(1500);

lcd.clear();
lcd.createChar(1,t1);
lcd.createChar(2,t2);
lcd.createChar(3,t3);
lcd.createChar(4,t4);
lcd.createChar(5, d);
lcd.createChar(6, Lck);

lcd.setCursor(19,0);
lcd.write(6);
lcd.setCursor(1,1);
lcd.write(1);
lcd.setCursor(1,2);
lcd.write(2);
lcd.setCursor(2,1);
lcd.write(3);
lcd.setCursor(2,2);
lcd.write(4);
lcd.setCursor(4,1);
lcd.print("Temperature :");
lcd.setCursor(7,2);
lcd.print(tmp);
lcd.setCursor(11,2);
lcd.write(5);
lcd.setCursor(12,2);
lcd.print("C");

delay(750);
lcd.clear();

lcd.createChar(1,hum1);
lcd.createChar(2,hum2);
lcd.createChar(3,hum3);
lcd.createChar(4,hum4);

lcd.setCursor(19,0);
lcd.write(6);
lcd.setCursor(3,1);
lcd.write(1);
lcd.setCursor(3,2);
lcd.write(2);

```

```

lcd.setCursor(4,1);
lcd.write(3);
lcd.setCursor(4,2);
lcd.write(4);
lcd.setCursor(6,1);
lcd.print("Humidity :");
lcd.setCursor(7,2);
lcd.print(hum);
lcd.setCursor(12,2);
lcd.print("%");
delay(750);
}

```

CIRCUIT DIAGRAM:

