<https://wokwi.com/projects/363861427169818625>

CODING:

Sketch.ino

#define BLYNK\_TEMPLATE\_ID "TMPLgCeV0y1b"

#define BLYNK\_DEVICE\_NAME "Home"

#define BLYNK\_AUTH\_TOKEN "93h-1b23ewIQooDTdB2y2COGacfYkbdO"

#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("2023");

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);

}

diagram.json

{

  "version": 1,

  "author": "Karthi Keyan",

  "editor": "wokwi",

  "parts": [

    {

      "type": "wokwi-breadboard-half",

      "id": "bb1",

      "top": -176.2,

      "left": -91.8,

      "rotate": 180,

      "attrs": {}

    },

    { "type": "wokwi-breadboard-mini", "id": "bb2", "top": -308.6, "left": -309.6, "attrs": {} },

    {

      "type": "wokwi-breadboard-mini",

      "id": "bb3",

      "top": -95.1,

      "left": -399.7,

      "rotate": 90,

      "attrs": {}

    },

    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": -139.3, "left": -216.2, "attrs": {} },

    {

      "type": "wokwi-relay-module",

      "id": "relay1",

      "top": 82.37,

      "left": -101.01,

      "rotate": 90,

      "attrs": {}

    },

    {

      "type": "wokwi-relay-module",

      "id": "relay2",

      "top": 81.06,

      "left": -42.41,

      "rotate": 90,

      "attrs": {}

    },

    {

      "type": "wokwi-relay-module",

      "id": "relay3",

      "top": 81.06,

      "left": 14.35,

      "rotate": 90,

      "attrs": {}

    },

    {

      "type": "wokwi-relay-module",

      "id": "relay4",

      "top": 81.06,

      "left": 73.22,

      "rotate": 90,

      "attrs": {}

    },

    {

      "type": "wokwi-photoresistor-sensor",

      "id": "ldr1",

      "top": -396.4,

      "left": -257.6,

      "rotate": 90,

      "attrs": {}

    },

    {

      "type": "wokwi-lcd2004",

      "id": "lcd1",

      "top": -195.2,

      "left": 255.2,

      "attrs": { "pins": "i2c" }

    },

    {

      "type": "wokwi-led",

      "id": "led1",

      "top": -330,

      "left": -303.4,

      "attrs": { "color": "blue" }

    },

    { "type": "wokwi-led", "id": "led2", "top": -330, "left": -265, "attrs": { "color": "blue" } },

    {

      "type": "wokwi-dht22",

      "id": "dht1",

      "top": -316.5,

      "left": -24.6,

      "attrs": { "temperature": "-0.4", "humidity": "65.5" }

    },

    {

      "type": "wokwi-pir-motion-sensor",

      "id": "pir1",

      "top": -38.62,

      "left": -425,

      "rotate": 270,

      "attrs": {}

    },

    {

      "type": "wokwi-relay-module",

      "id": "relay5",

      "top": -96.6,

      "left": -464,

      "rotate": 180,

      "attrs": {}

    }

  ],

  "connections": [

    [ "esp:TX0", "$serialMonitor:RX", "", [] ],

    [ "esp:RX0", "$serialMonitor:TX", "", [] ],

    [ "esp:3V3", "bb1:tp.25", "red", [ "v0" ] ],

    [ "esp:GND.1", "bb1:tn.25", "black", [ "h0" ] ],

    [ "relay1:VCC", "bb1:tp.21", "red", [ "v0" ] ],

    [ "relay1:GND", "bb1:tn.22", "black", [ "v0" ] ],

    [ "esp:D5", "bb1:28t.d", "green", [ "h0" ] ],

    [ "relay1:IN", "bb1:28t.a", "blue", [ "v0" ] ],

    [ "esp:D18", "bb1:22t.d", "green", [ "h0" ] ],

    [ "relay2:IN", "bb1:22t.b", "blue", [ "v0" ] ],

    [ "relay2:VCC", "bb1:tp.16", "red", [ "v0" ] ],

    [ "relay2:GND", "bb1:tn.17", "black", [ "v0" ] ],

    [ "relay3:VCC", "bb1:tp.11", "red", [ "v0" ] ],

    [ "relay3:GND", "bb1:tn.12", "black", [ "v0" ] ],

    [ "esp:D19", "bb1:16t.c", "green", [ "h0" ] ],

    [ "relay3:IN", "bb1:16t.a", "blue", [ "v0" ] ],

    [ "relay4:VCC", "bb1:tp.6", "red", [ "v0" ] ],

    [ "relay4:GND", "bb1:tn.7", "black", [ "v0" ] ],

    [ "relay4:IN", "bb1:10t.a", "blue", [ "v0" ] ],

    [ "esp:VIN", "bb1:bp.25", "red", [ "h-32.73", "v-11.44" ] ],

    [ "esp:GND.2", "bb1:bn.25", "black", [ "h-25.72", "v-179.53", "h4.67" ] ],

    [ "lcd1:GND", "bb1:bn.1", "black", [ "h0" ] ],

    [ "lcd1:VCC", "bb1:bp.1", "red", [ "h0" ] ],

    [ "esp:D4", "bb1:10t.c", "green", [ "h10.27", "v-16.8" ] ],

    [ "lcd1:SDA", "esp:D21", "green", [ "h-14", "v51.46" ] ],

    [ "lcd1:SCL", "esp:D22", "green", [ "h-31", "v45.74", "h-329.93", "v-23.93" ] ],

    [ "led2:A", "bb2:7t.b", "", [ "$bb" ] ],

    [ "led2:C", "bb2:6t.b", "", [ "$bb" ] ],

    [ "led1:A", "bb2:3t.b", "", [ "$bb" ] ],

    [ "led1:C", "bb2:2t.b", "", [ "$bb" ] ],

    [ "bb2:3t.c", "bb2:7t.c", "green", [ "v0" ] ],

    [ "esp:D2", "bb2:7t.e", "green", [ "h24", "v-237.12", "h-155.28" ] ],

    [ "bb2:2t.d", "bb2:6t.d", "black", [ "v0" ] ],

    [ "bb1:bn.23", "bb2:12b.h", "green", [ "v-31.96", "h-1.89" ] ],

    [ "bb2:6t.e", "bb2:12b.g", "black", [ "v19.43", "h2.01" ] ],

    [ "bb2:15t.e", "bb2:12b.f", "black", [ "v0" ] ],

    [ "bb1:bp.24", "bb2:16t.e", "red", [ "v0" ] ],

    [ "esp:D23", "bb2:14t.d", "green", [ "h9.67", "v-154.15", "h-19.54" ] ],

    [ "ldr1:VCC", "bb2:16t.c", "", [ "$bb" ] ],

    [ "ldr1:GND", "bb2:15t.c", "", [ "$bb" ] ],

    [ "ldr1:DO", "bb2:14t.c", "", [ "$bb" ] ],

    [ "ldr1:AO", "bb2:13t.c", "", [ "$bb" ] ],

    [ "dht1:GND", "bb1:bn.17", "black", [ "v0" ] ],

    [ "dht1:VCC", "bb1:bp.20", "red", [ "v0" ] ],

    [ "dht1:SDA", "bb1:23b.i", "blue", [ "v0" ] ],

    [ "esp:D15", "bb1:23b.h", "blue", [ "h29.06", "v-1.34" ] ],

    [ "esp:VIN", "bb3:14t.a", "red", [ "h0" ] ],

    [ "esp:GND.2", "bb3:13t.a", "black", [ "h0" ] ],

    [ "bb3:5b.f", "bb3:5t.e", "black", [ "h0" ] ],

    [ "bb3:13t.e", "bb3:12b.f", "black", [ "h-15.22", "v-10.88" ] ],

    [ "bb3:4t.b", "esp:D33", "green", [ "h38.08", "v1.59" ] ],

    [ "bb3:14b.f", "bb3:14t.e", "red", [ "h0" ] ],

    [ "bb3:13b.f", "bb3:10t.d", "blue", [ "h10.42", "v-32.65", "h-0.66" ] ],

    [ "esp:D27", "bb3:10t.a", "blue", [ "h0" ] ],

    [ "bb3:4t.e", "bb3:4b.f", "blue", [ "h0" ] ],

    [ "bb3:6b.f", "bb3:6t.e", "red", [ "h0" ] ],

    [ "pir1:VCC", "bb3:14b.g", "", [ "$bb" ] ],

    [ "pir1:OUT", "bb3:13b.g", "", [ "$bb" ] ],

    [ "pir1:GND", "bb3:12b.g", "", [ "$bb" ] ],

    [ "relay5:VCC", "bb3:6b.g", "", [ "$bb" ] ],

    [ "relay5:GND", "bb3:5b.g", "", [ "$bb" ] ],

    [ "relay5:IN", "bb3:4b.g", "", [ "$bb" ] ],

    [ "bb3:14t.c", "bb3:6t.c", "red", [ "h0" ] ],

    [ "bb3:13t.b", "bb3:5t.b", "black", [ "h0" ] ]

  ]

}