NAAN MUDHALVAN – PROFESSIONAL READINESS FOR INNOVATION, EMPLOYMENT AND ENTERPRENEURSHIP

ASSIGNMENT – 1

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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:

```cpp
#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,};

//HomeSymbol
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,};
```

```cpp
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);
```

```cpp
}

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);
```

```cpp
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;   }     elseif(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: