IBM ASSIGNMENT-1

Assignment Date	17 September 2022
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Maximum Marks	4 Marks

Assignment details:

Technology: IOT

Domain: Signs With Smart connectivity For Better Road Safety

Assignment Question :-

Construct a home automation system using Arudino Uno circuit using 2+ sensors, LED and a Buzzer.

Assignment Description:

This is a connection setup of an Arudino Uno, LED(3),temperature sensor, humidity sensor and a buzzer. Initially the arudino is connected to the temperature sensor and with LEDs. When the temperature varies different LEDs glow. Then the arudino is connected to the PIR sensor which is connected to the buzzer. The PIR sensor senses the movement of humans and produces output according to the movement.

Apparatus Required:

- Arudino Uno

- LEDs(Green, Blue, Red)

- PIR sensor

- Temperature Sensor

- Buzzer

CODE:

```
#include <LiquidCrystal.h>
```

```
LiquidCrystal lcd(13, 12, 11, 10, 9, 8);

#define red 5
#define blue 4
#define green 3
#define bulb 6

#define motor 2

#define PIR_In 7

int sensor_Input;
float temp;

void setup()
        {
        Serial.begin(9600);
        lcd.begin(16, 2);
        pinMode(red,OUTPUT);
        pinMode(blue,OUTPUT);
        pinMode(green, OUTPUT);
        pinMode(motor, OUTPUT);
        pinMode(PIR_In, INPUT);
        pinMode(bulb, OUTPUT);
        }

void loop()
        {
        measure_Temp();
        display_Temp();
        led_d();
        check_For_Intruder();
        }

void measure_Temp()
        {
        sensor_Input = analogRead(A0);
        temp = (float)sensor_Input / 1024;
        temp = temp * 5;
        temp = temp - 0.5;
        temp = temp * 100;
        }

void check_For_Intruder()
        {
        boolean sensorvalue= digitalRead(PIR_In);
        if(sensorvalue==1)
                {
                        digitalWrite(bulb,HIGH);
                        lcd.setCursor(0,0);
                        lcd.print("Welcome Sir_____");
                        lcd.setCursor(0,1);
```

```arduino
                lcd.print("In House_____");
            digitalWrite(motor,HIGH);
                delay(5000);
                lcd.clear();
            }
        else
            {
                digitalWrite(bulb,LOW);
            }
        delay(10);
        }

void display_Temp()
        {
        lcd.setCursor(0, 0);
        Serial.print("Temp. in Celcius: ");
        Serial.print(temp);
        Serial.println();
        lcd.print("Temp. in Celcius: ");
        lcd.setCursor(5, 1);
        lcd.print(temp);
if(temp>25){
        lcd.setCursor(11, 1);
        lcd.print("M-ON_");}
else{lcd.setCursor(11, 1);
        lcd.print("M-OFF");}

        delay(500);
        }
void led_d(){
        if(temp<25){
            digitalWrite(red,LOW);
            digitalWrite(blue,LOW);
            digitalWrite(green,HIGH);
            }
        if(temp<30 && temp>25){
            digitalWrite(red,LOW);
            digitalWrite(blue,HIGH);
            digitalWrite(green,LOW);
            }
        if(temp>40){
            digitalWrite(red,HIGH);
            digitalWrite(blue,LOW);
            digitalWrite(green,LOW);
            }
        if(temp>25){
            digitalWrite(motor,HIGH);
            }
        if(temp<25){
            digitalWrite(motor,LOW);
            }
}
```