**Assignment -1**

Internet of Things

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| Assignment Date | 19 September 2022 |
| Student Name | NANDAMUDI DINESH |
| Student Roll Number | 610519104067 |
| Maximum Marks | 2 Marks |

**Question-1:**

Make a Smart Home in Tinker cad, using 2+ sensors, Led, Buzzer in single code and circuit.

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| **Solution:** |
| #include <Servo.h>  int output1Value = 0;  int sen1Value = 0;  int sen2Value = 0;  int const gas\_sensor = A1;  int const LDR = A0;  int limit = 400;  long readUltrasonicDistance(int triggerPin, int echoPin)  {  pinMode(triggerPin, OUTPUT); // Clear the trigger  digitalWrite(triggerPin, LOW);  delayMicroseconds(2);  // Sets the trigger pin to HIGH state for 10 microseconds  digitalWrite(triggerPin, HIGH);  delayMicroseconds(10);  digitalWrite(triggerPin, LOW);  pinMode(echoPin, INPUT);  // Reads the echo pin, and returns the sound wave travel time in microseconds  return pulseIn(echoPin, HIGH);  }  Servo servo\_7;  void setup()  {  Serial.begin(9600); //initialize serial communication  pinMode(A0, INPUT); //LDR  pinMode(A1,INPUT); //gas sensor  pinMode(13, OUTPUT); //connected to relay  servo\_7.attach(7, 500, 2500); //servo motor  pinMode(8,OUTPUT); //signal to piezo buzzer  pinMode(9, INPUT); //signal to PIR  pinMode(10, OUTPUT); //signal to npn as switch  pinMode(4, OUTPUT); //Red LED  pinMode(3, OUTPUT); //Green LED    }  void loop()  {    //------light intensity control------//  //--------------------------------------------------------------  int val1 = analogRead(LDR);  if (val1 > 500)  {  digitalWrite(13, LOW);  Serial.print("Bulb ON = ");  Serial.print(val1);  }  else  {  digitalWrite(13, HIGH);  Serial.print("Bulb OFF = ");  Serial.print(val1);  }  //--------------------------------------------------------------  //------ light & fan control --------//  //--------------------------------------------------------------  sen2Value = digitalRead(9);  if (sen2Value == 0)  {  digitalWrite(10, LOW); //npn as switch OFF  digitalWrite(4, HIGH); // Red LED ON,indicating no motion  digitalWrite(3, LOW); //Green LED OFF, since no Motion detected  Serial.print(" || NO Motion Detected " );  }    if (sen2Value == 1)  {  digitalWrite(10, HIGH);//npn as switch ON  delay(5000);  digitalWrite(4, LOW); // RED LED OFF  digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected  Serial.print(" || Motion Detected! " );  }      //---------------------------------------------------------------  // ------- Gas Sensor --------//  //---------------------------------------------------------------  int val = analogRead(gas\_sensor); //read sensor value  Serial.print("|| Gas Sensor Value = ");  Serial.print(val); //Printing in serial monitor  //val = map(val, 300, 750, 0, 100);  if (val > limit)  {  tone(8, 650);  }  delay(300);  noTone(8);  //--------------------------------------------------------------  //------- servo motor ---------//  //-------------------------------------------------------------  sen1Value = 0.01723 \* readUltrasonicDistance(6, 6);  if (sen1Value < 100)  {  servo\_7.write(90);  Serial.print(" || Door Open! ; Distance = ");  Serial.print(sen1Value);  Serial.print("\n");    }  else  {  servo\_7.write(0);  Serial.print(" || Door Closed! ; Distance = ");  Serial.print(sen1Value);  Serial.print("\n");  }  delay(10); // Delay a little bit to improve simulation performance  } |
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