ASSIGNMENT 1: AKASH B

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CODE:

```
#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(3000);
            digitalWrite(4, LOW); // RED LED OFF                  digitalWrite(3,
HIGH);//GREEN LED ON , indicating motion detected
    Serial.print("    || Motion Detected!      " );
            }
 delay(300);
//-----------------------------------------------------------------
     // ------- 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
}
```

OUTPUT