

ASSIGNMENT 1 : HOME AUTOMATION SYSTEM

TOPIC : IOT Gas Leakage Monitoring and Alerting system

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CODING :

```
#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(triggerPi
    n, 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()
{
  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 =
    ");

```

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Serial.print(val);                //Printing in serial monitor
//val = map(val, 300,
750, 0, 100);

if (val > limit)
{
tone(8, 650);
}
delay(30
0);
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
}

```

IMAGE :

