

SMART HOME USING ARDUINO

Code:

```
// C++ 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);
  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-----// Change
  //-----
  int val1 = analogRead(LDR);
  if (val1 > 500)
  {
    digitalWrite(13, HIGH);
    Serial.print("Bulb ON = ");
    Serial.print(val1);
  }
}
```

```
}  
else  
{  
  digitalWrite(13, LOW);  
  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:

