

Assignment -1

Simple Home Automation

Assignment Date	20 September 2022
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Student Roll Number	2019504006
Maximum Marks	2 Marks

Question:

Design and Program a simple Home automation circuit using Arduino Uno board along with a Buzzer, LED, switch.

Solution:

```
int sensorValue = 0;
```

```
int greenled = 6;
```

```
int redled = 8;
```

```
int buzzer_pin = 11;
```

```
int senlValue = 0;
```

```
int A;
```

```
long readUltrasonicDistance(int triggerPin, int echoPin)
```

```
{
```

```
    pinMode(triggerPin, OUTPUT);
```

```
    digitalWrite(triggerPin, LOW);
```

```
    delayMicroseconds(2);
```

```
    digitalWrite(triggerPin, HIGH);
```

```
    delayMicroseconds(10);
```

```
    digitalWrite(triggerPin, LOW);
```

```
    pinMode(echoPin, INPUT);
```

```
    return pulseIn(echoPin, HIGH);
```

```
}
```

```
void setup()
```

```
{
```

```
    Serial.begin (9600);
```

```
    pinMode(11, OUTPUT);
```

```

pinMode(6, OUTPUT);
pinMode(8, OUTPUT);
pinMode(4, INPUT);
pinMode(12, OUTPUT);
pinMode(13, OUTPUT);
pinMode(A1, INPUT);
}

void loop()
{
  //-----Gas Sensor-----//
  //-----

  int sensorValue = analogRead(A0);
  Serial.println(sensorValue);

  if(sensorValue > 100)
  {
    digitalWrite (buzzer_pin, HIGH);
    digitalWrite (redled, HIGH);
  }
  else
  {
    digitalWrite (buzzer_pin, LOW);
    digitalWrite (redled, LOW);
  }
  delay(1000);

  //-----
  //-----UltrasonicDistance-----//
  //-----

  sen1Value = 0.01723*readUltrasonicDistance(3,2);

  if(sen1Value<10)
  {

```

```

    Serial.print(" ||Door Open! ; Distance = ");
    Serial.print(sen1 Value);
    digitalWrite (buzzer_pin, HIGH);
    digitalWrite (greenled, HIGH);
}
else
{
    Serial.print(" ||Door Closed! ; Distance = ");
    Serial.print(sen1 Value);
    digitalWrite (buzzer_pin, LOW);
    digitalWrite (greenled, LOW);
}
delay(1000);

//-----
//-----PIR sensor-----//
//-----

if (digitalRead(4)==1)
{
    digitalWrite(12,HIGH);
    delay(1000);
}
else
{
    digitalWrite(12,LOW);
    delay(100);
}

//-----
//-----Temp Sensor-----//
//-----

A = analogRead(A1);
Serial.println(A);
delay(1000);

```

```
if(A >= 180)
{
  digitalWrite(13, 1);
}
else
{
  digitalWrite(13, 0);
}

}
```

Circuit:

