

SMART HOME ASSIGNMENT : 1

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Smart Home

IOT or internet of things is an upcoming technology that allows us to control hardware devices through the internet, here we purpose to use IOT in order to control home appliances .Thus automating modern homes through the internet. This system uses three loads to demonstrate as house lighting and a fan. Our user friendly interface allows a user to easily control these home appliances through the internet. For this system we use an AVR family microcontroller. This microcontroller is interfaced with a wifi modem to get user commands over the internet. Also we have an LCD display to display system status. Relays are used to switch loads. The

entire system is powered by a 12V transformer. After receiving user commands over the internet, microcontroller processes these instructions to operate these loads accordingly and display the system status on an LCD display.

Hardware Specifications

- ❖ Atmega Microcontroller
- ❖ ESP8266 Wifi Module
- ❖ LCD Display
- ❖ DC Cooling Fan
- ❖ Relay
- ❖ Relay Driver IC
- ❖ Vtg Regulator IC
- ❖ Resistors
- ❖ Capacitors
- ❖ Transistors

- ❖ Cables and Connectors
- ❖ Diodes
- ❖ PCB and Breadboards
- ❖ LED
- ❖ Transformer/Adapter
- ❖ Push Buttons
- ❖ Switch
- ❖ IC
- ❖ IC Sockets

Software Specifications

- ❖ Arduino Compiler
- ❖ MC Programming Language C
- ❖ IOTGecko

IOD devices for security your home

- ❖ Wall switches
- ❖ Voltage Sensors
- ❖ Air Conditioner

- ❖ Energy Motors
- ❖ Smart Door lock

Coding

```
#<include<SPI.h>
#<include<Wire.h>
#<include<IRremote.h>
Const int relay_1=12;
Const int relay_2=11;
Const int relay_3=10;
Const int relay_4=9;
Const int mswitch_1=8;
Const int mswitch_2=7;
Const int mswitch_3=6;
Const int mswitch_4=5;
Int RECV_PIN=3;
IRrecv irrecv(RECV_PIN);
Decode_results results;
Int toggleState_1=0;
```

```
tate_3=0;
Int toggleState_4=0;
Void setup(){
Serial.begin(9600);
Irrec.enableIRIn();
pinMode(relay_1,OUTPUT);
pinMode(relay_2,OUTPUT);
pinMode(relay_3,OUTPUT);
pinMode(relay_4,OUTPUT);
pinMode(mswitch_1,INPUT_PULLU
P);
pinMode(mswitch_2,INPUT_PULLU
P);
pinMode(mswitch_3,INPUT_PULLU
P);
pinMode(mswitch_4,INPUT_PULLU
P);
}
```

```
Void relayOnOff (int relay){
Switch(relay){
Case1:
    If (toggleState_1==0){
        digitalWrite(relay_1,HIGH);//turn
on relay 1
        toggleState_1=1;
    }
    else{
        digitalWrite(relay_1,LOW);//turn
off relay 1
        toggleState_1=0;
    }
    Delay(100);
break;
case2:
    if (toggleState_2==0){
```

```
    digitalWrite(relay_2,HIGH);//turn  
on relay 2
```

```
    toggleState_2=1;  
}
```

```
else{  
    digitalWrite(relay_2,LOW);//turn  
off relay 2
```

```
    toggleState_2=0;  
}
```

```
    Delay(100);
```

```
break;
```

```
case3:
```

```
if (toggleState_3==0){  
    digital write(relay_3,HIGH);//turn  
on relay 3
```



```
togglestate_3=1;  
}else{  
Digitalwrite (relay_3, LOW);//turn  
Off relay3  
Togglestate_3=0  
Delay=(100);  
Break;
```

Case4:

```
if (toggleState_4==0){  
digital write(relay_4,HIGH);//turn  
on relay 4  
togglestate_4=1;  
}else{  
Digitalwrite (relay_4, LOW);//turn  
Off relay4  
Togglestate_4=0
```

```
Delay=(100);  
Break;  
Default:break;  
}  
}  
Void loop(){  
If(digitalRead(mswitch_1)==LOW){  
Delay(200);  
Relayonoff(1);  
}  
elseif(digitalRead(mswitch_1)==LOW)  
W){  
Delay(200);  
Relayonoff(2);  
}  
elseif(digitalRead(mswitch_3)==LOW)  
W){  
Delay(200);
```

```
Relayonoff(3);  
}  
elseif(digitalRead(mswitch_4)==LOW){  
Delay(200);  
Relayonoff(4);  
}  
If (irrecv. decode(&results)){  
Switch( result.value){  
Case0XFD08F7:  
Relayonoff(1);  
Break;  
Case0XFD8877:  
relayOnOff(2);  
break;  
caseOxFD48B7:  
relayOnOff(3);  
break;
```

```
caseOxFD28D7:  
  relayOnOff(4);  
  break;  
default:break();  
}  
Irrecv.resume();  
}  
}
```