IOT BASED HOME AUTOMATION

MAJOR PROJECT

INTRODUCTION:

A **home automation** system will control lighting, climate, entertainment systems, and appliances. When connected with the Internet, home devices are an important constituent of the Internet of Things ("IoT"). A home automation system typically connects controlled devices to a central hub or "gateway".

Home automation is anything that enables you to use your home's lighting, heating and appliances more conveniently and efficiently. It can be as simple as remote or automatic control of a few lights, or it can be a complete system that controls all major parts of your home, custom set to your own personal preference.

Required Components:

1) Arduino Uno with cable
2) Esp8266(Wi-Fi module)
3) 5v Relay two channel
4) 230v bulb along with holder
5) Wires
6) Jumper cables

Source Code:

```
#include <LiquidCrystal.h> //Library for LCD display
#include <SoftwareSerial.h> //Library for serial connection with ESP

SoftwareSerial ESP(2,3); //ESP is connected to 12 and 13 pin of Arduino
LiquidCrystal lcd(13,12,11,10,9,8);

String sendData = "GET /channels/
863136/fields/1/last.json?api_key=IZ0FK39UJ9MBXHME&results=2";
String output = ""; //Initialize a null string variable
#define Relay 1 6
#define Relay 2 7
```

```cpp
void setup()
{
 pinMode(Relay1,OUTPUT);
 pinMode(Relay2,OUTPUT);
 lcd.begin(16, 2); //Initialise 16*2 LCD
 lcd.print(" Google assist  ");
 lcd.setCursor(0, 1);
 lcd.print("using ESP8266-01");
 delay(2000);

 Serial.begin (9600);
 delay(100);
 ESP.begin(9600);


  ESP_talk("AT",1000);
  ESP_talk("AT+RST",1000);
  ESP_talk("AT+CWMODE=1",5000);
  lcd.clear();
  lcd.print("connecting WiFi..");
  ESP_talk("AT+CWJAP=\"AntO\",\"2231anto\"",10000);
  lcd.print("Wifi Connected");
  Serial.println("Wifi Connected");
  delay(1000);
   lcd.clear();
}

void loop() {

  String cmd = "AT+CIPSTART=\"TCP\",\"";   // Establishing TCP connection//
AT+CIPSTART=4,"TCP","google.com",80
 cmd += "184.106.153.149";  //  api.thingspeak.com
 cmd += "\",80";   // port 80
 ESP_talk(cmd,1000);
   delay(100);
   ESP_talk("AT+CIPSEND=76",1000);
   delay(100);
  output = "";
   ESP_talk(sendData,1000);
   delay(100);

char incoming_value=output[126];
   Serial.print("incoming_value is : ");
```

```arduino
    Serial.println(incoming_value);
    lcd.clear();
    lcd.print("Listning...."); //Intro Message line 1
    lcd.setCursor(0, 1);

    if (incoming_value == '0') //light should be off
    {
      lcd.print("Light is ON :-( " );
      digitalWrite(Relay1,LOW);
    }
    if (incoming_value == '1') //light should be off
    {
      lcd.print(":-) Light is OFF");
      digitalWrite(Relay1,HIGH);
    }
    if (incoming_value == '2') //light should be off
    {
      lcd.print("FAN is ON:-(    " );
      digitalWrite(Relay2,HIGH);
    }
    if (incoming_value == '3') //light should be off
    {
      lcd.print(":-) Fan is OFF  ");
      digitalWrite(Relay2,LOW);
    }
}

void ESP_talk(String AT_cmd, const int timeout)
{

  Serial.print("Sent: ");
  Serial.print(AT_cmd);
  ESP.println(AT_cmd); //print to ESP through software serial
  Serial.println("");//Move to next line


  long int time = millis();

  output=""; //clear the string

  while ( (time + timeout) > millis())
  {
    while (ESP.available())
```

```
  {
    char i = ESP.read(); // read one char
    output += i; //Combine char to string
  }
}

  Serial.println("Received: ");
  Serial.print(output);

}
```

Circuit Diagram: