Project 14:

Controlling LED using WeMos and Telegram Bot – IoT Project

1. Introduction

In this project we will control an LED which is connected to **ESP8266** with a Telegram bot. Hope you know about **Telegram**, it is a messenger app similar to Whatsapp. This enables users to control their ESP8266 via simply typing and sending commands in Telegram. By adding some relays or TRIAC you can make this a home automation project.

COMPONENTS: -

1.wemos

2.LED

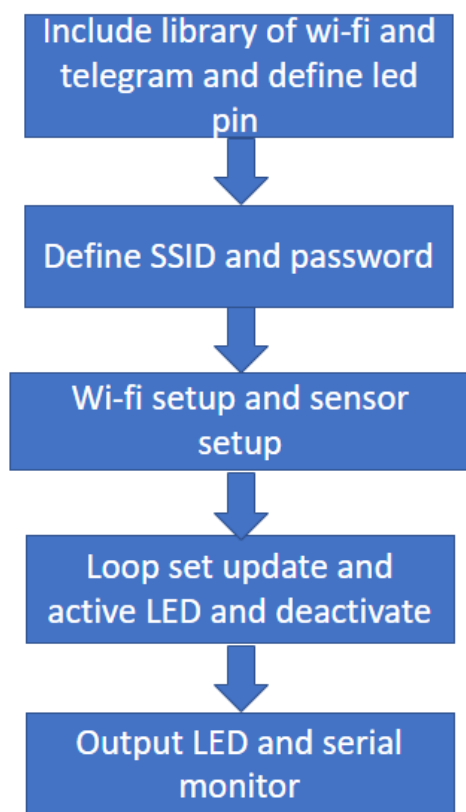## APPLICATION: -

Made popular by their efficiency, range of color, and long lifespan, LED lights are ideal for numerous applications including night lighting, art lighting, and outdoor lighting. These lights are also commonly used in electronics and automotive industries, and for signage, along with many other uses.

OBJECTIVES: -

LEDs also aim light in a specific direction unlike conventional bulbs, which emit light—and heat—in all directions (because LEDs are mounted on a flat surface, they emit light hemispherically rather than spherically). This directional lighting capability reduces wasted light and energy.

FLOW CHART:-

```
Include library of wi-fi and
telegram and define led
pin
        ↓
Define SSID and password
        ↓
Wi-fi setup and sensor
setup
        ↓
Loop set update and
active LED and deactivate
        ↓
Output LED and serial
monitor
```

PROGRAMMING: -

```cpp
#include <ESP8266WiFi.h>
#include <WiFiClientSecure.h>
#include <TelegramBot.h>

#define LED 4

const char* ssid = "<Your WiFi Name or SSID>";
const char* password = "<Your WiFi Password>";

const char BotToken[] = "<Token you get while creating the bot>";

WiFiClientSecure net_ssl;
TelegramBot bot (BotToken, net_ssl);

void setup()
{
  Serial.begin(115200);
  while (!Serial) {} //Start running when the serial is open
  delay(3000);
  Serial.print("Connecting WiFi.");
  Serial.println(ssid);
  while (WiFi.begin(ssid, password) != WL_CONNECTED)
```

```cpp
  {
    Serial.print(".");
    delay(500);
  }
  Serial.println("");
  Serial.println("WiFi connected");
  bot.begin();
  pinMode(LED, OUTPUT);
}
void loop()
{
  message m = bot.getUpdates(); // Read new messages
  if (m.text.equals("on"))
  {
    digitalWrite(LED, 1);
    bot.sendMessage(m.chat_id, "LED is ON");
    Serial.println("LED is ON");
  }
  else if (m.text.equals("off"))
  {
    digitalWrite(LED, 0);
    bot.sendMessage(m.chat_id, "LED is OFF");
    Serial.println("LED is OFF");
  }
}
```

HARDWARE CONNECTION: -

1.Connect pin LED to WEMOS

2.Connect pin GND to GND

3.Connect pin 5V to 5V

CIRCUIT DIAGRAM:-