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CHAPTER 1

ABSTRACT

-->INTRA NETWORK CONTROLLER's main operation is to control the devices by turning them on or off or alter the voltage of the devices through internet.

-->This application is mainly used for making the things which are accessible on same network to be controlled across the networks.

-->INTRA NETWORK CONTROLLER mainly works on tunneling principle.

-->We used ngrok framework to do thatsily.

-->We used ESP 8266 to connect appliance to the internet.

CHAPTER 2
INTRODUCTION

In every household or any commercial we have many electronic appliances .In which many of them are controlled by a remote .For example in a house there will be fans which aren't controlled by a remote but regulator .Likewise an we can find an air-conditioner everywhere these days, and it is operated using an remote.

The basic task performed by this intra network controller is to control thoose of appliance's which can be controlled with out a remote .In initial days of "INTERNET OF THINGS" we were able to control the appliances without a remote but they should be manndatorily in the same network.

But here using this "INTRANETWORK CONTROLLER" we can control the appliances which are able to connect to internet and need not mandatorily be in the same network.

We can be able to control the appliances across the internet.

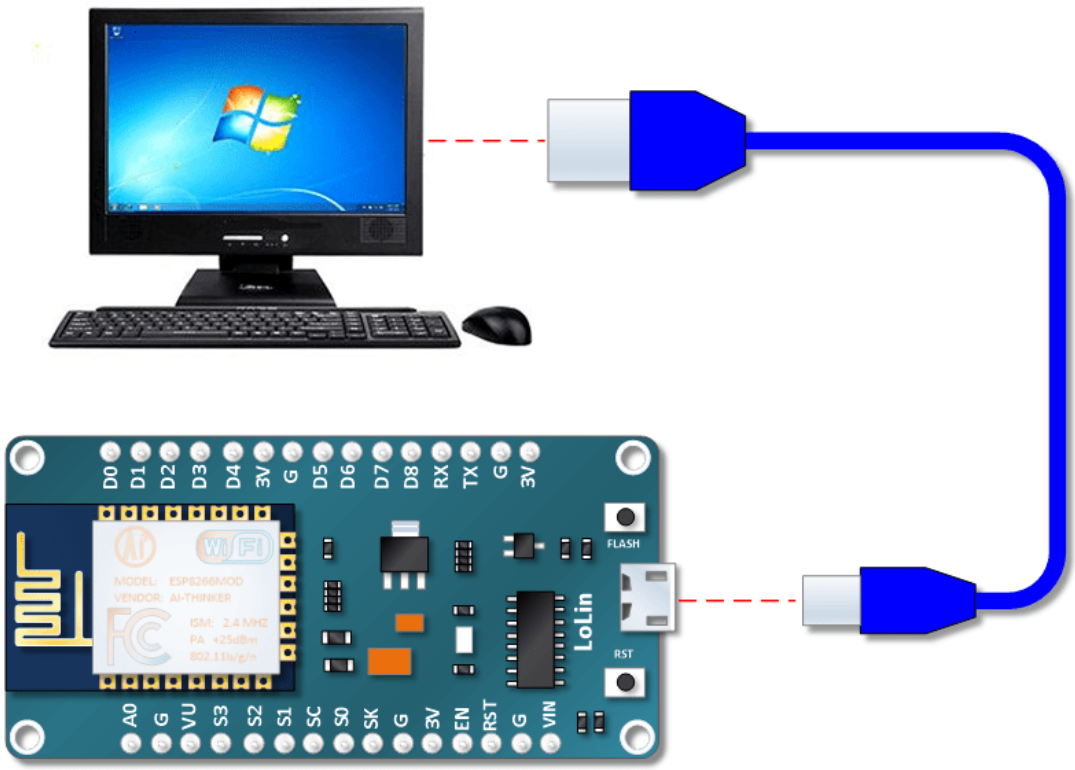

FIG-2.1: ESP 8266 Connected to an pc

By using this “INTRANETWORK CONTROLLER” we are able to control the electronic appliances across the internet.

But its practical application is limited to a little number of appliances .As the esp8266 is a 3.3V micro controller it can’t be able to properly control the appliances whose input voltages are greater than 3V.

SO, to control the appliances whoose input voltages are greater than that of values than in range (0-3V), we need a microcontroller with the functionality of the esp8266 but greater output voltage.
We can use raspberry pi board to control them.

Or we can simply use an logic level converter to connect the esp8266 to make the output voltage from 3 to 5v.

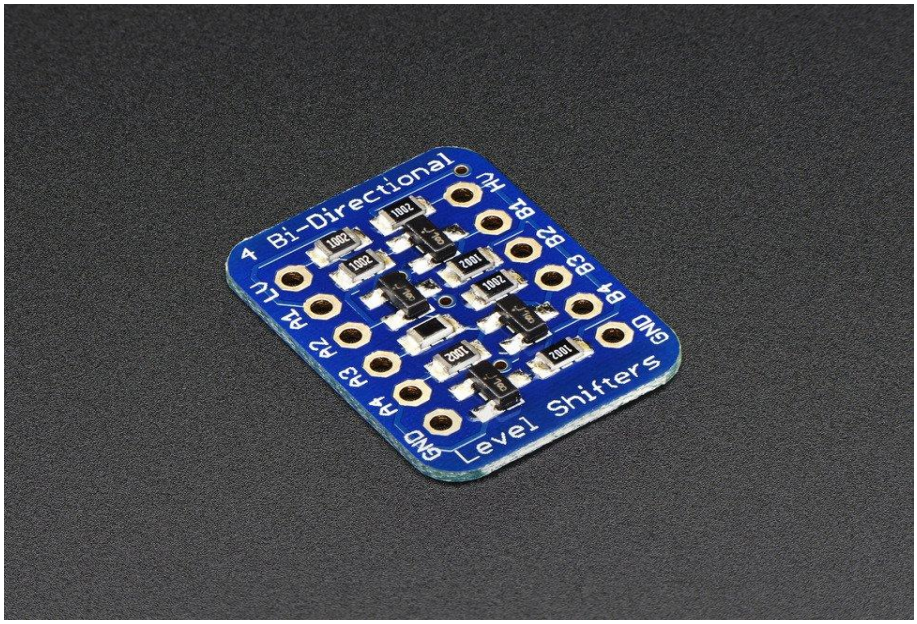

FIG-2.2: Logic level converter

CHAPTER 3
FLOW CHART / BLOCK DIAGRAM

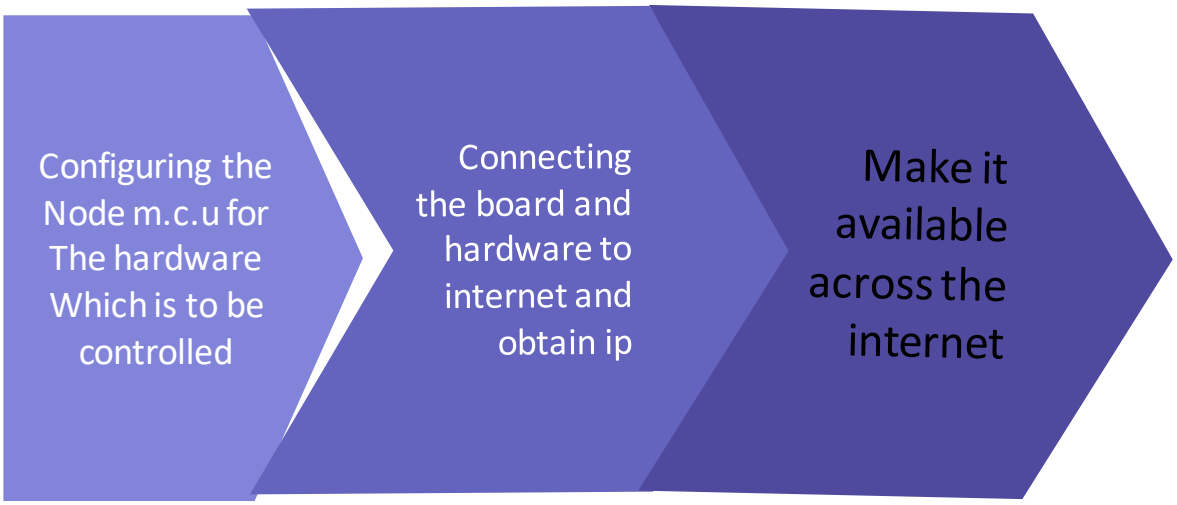

FIG-3.1:BLOCK DIAGRAM

CHAPTER 4
COMPONENTS USED

In the “INTRANETWORK CONTROLLER” the components used are,

(I) A PC with (Arduino IDE & NGROK) installed

(ii) An esp8266 board

(iii) The electric/electronic appliance we are going to control(basic led in our case)

(iv)bread board and connecting wires

(v) usb cable

FIG-4.2

FIG-4.3

FIG-4.1

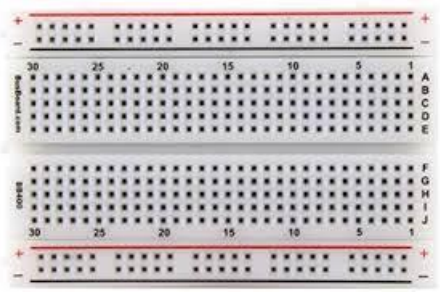

FIG-4.4.1

FIG-4.4.2

FIG-4.5

CHAPTER 5
CIRCUIT & IMPLEMENTATION

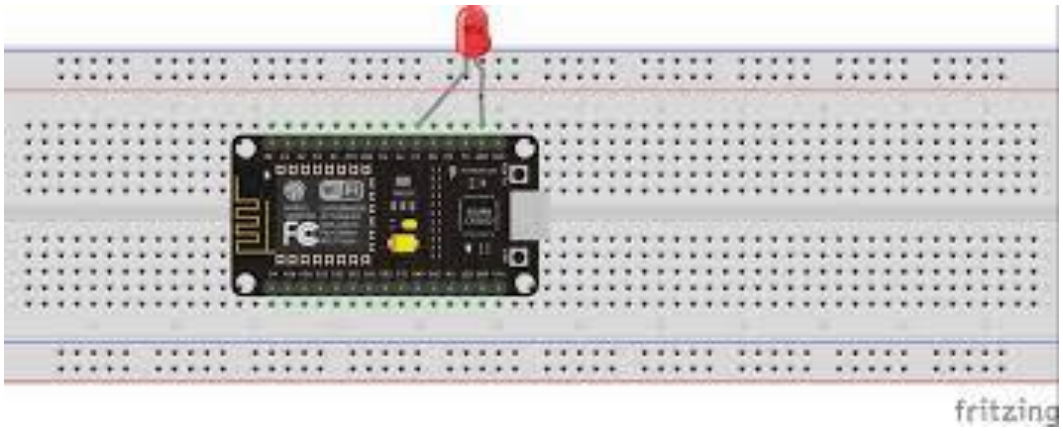

FIG-5.1:Circuit diagram

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Documents Open *Untitled Document 1 Save

Untitled Doc...

```
{
  Serial.begin(115200);
  pinMode(LED, OUTPUT);
  digitalWrite(LED, LOW);

  Serial.print("Connecting to the Newtork");
  WiFi.begin(ssid, password);
  while (WiFi.status() ≠ WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
  Serial.println("WiFi connected");
  server.begin();  // Starts the Server
  Serial.println("Server started");
  Serial.print("IP Address of network: ");
  Serial.println(WiFi.localIP());
  Serial.print("Copy and paste the following URL: https://");
  Serial.print(WiFi.localIP());
  Serial.println("/");}
void loop()
{
  WiFiClient client = server.available();
  if (!client){
    return;}
  Serial.println("Waiting for new client");
  while(!client.available()){
    delay(1);}
  String request = client.readStringUntil('\r');
  Serial.println(request);
  client.flush();

  int value = LOW;
  if(request.indexOf("/LED=ON") ≠ -1)
  {
    digitalWrite(LED, HIGH); // Turn ON LED
    value = HIGH;
  }
  if(request.indexOf("/LED=OFF") ≠ -1)
  {
    digitalWrite(LED, LOW); // Turn OFF LED
    value = LOW;
  }

```

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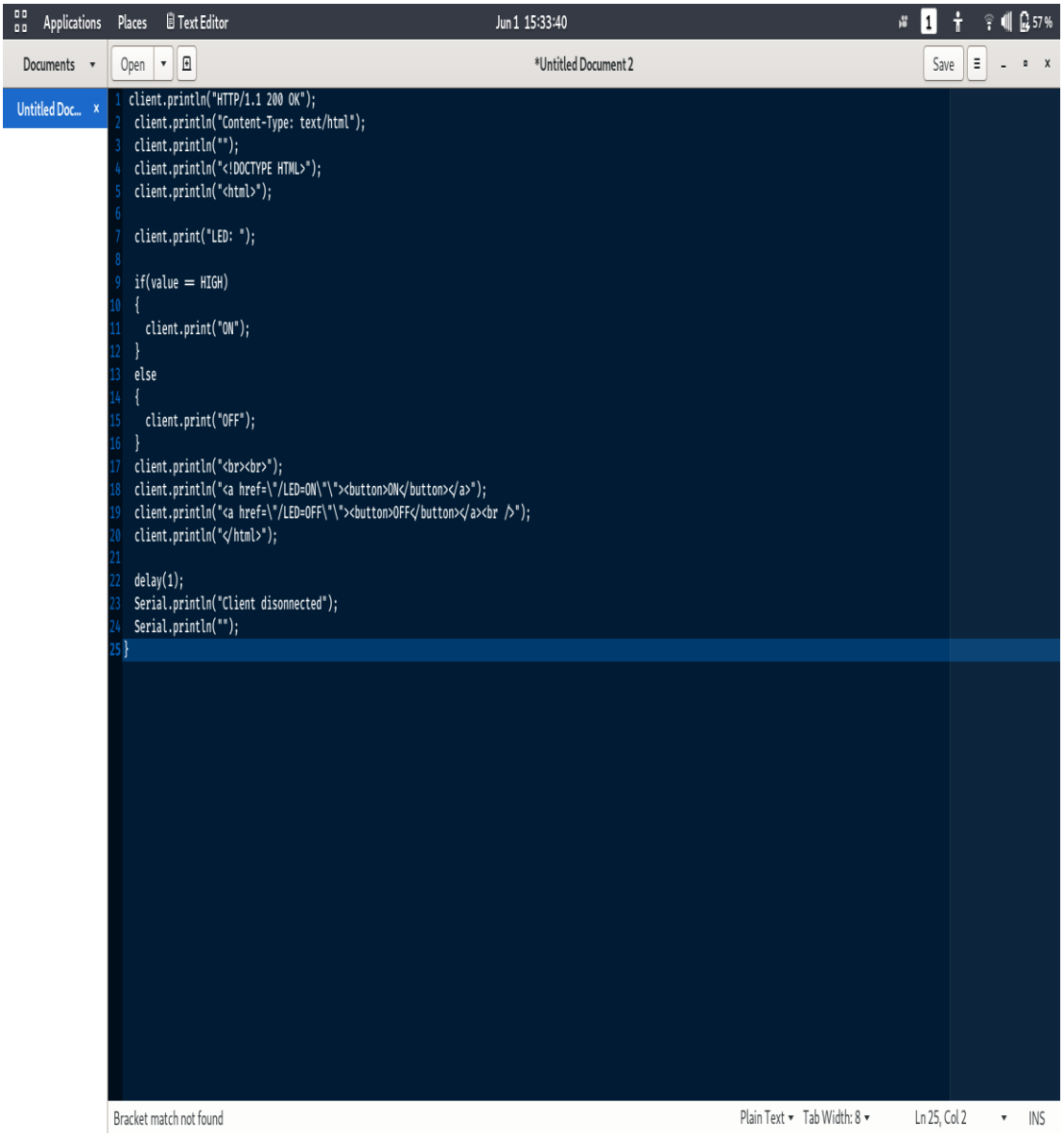
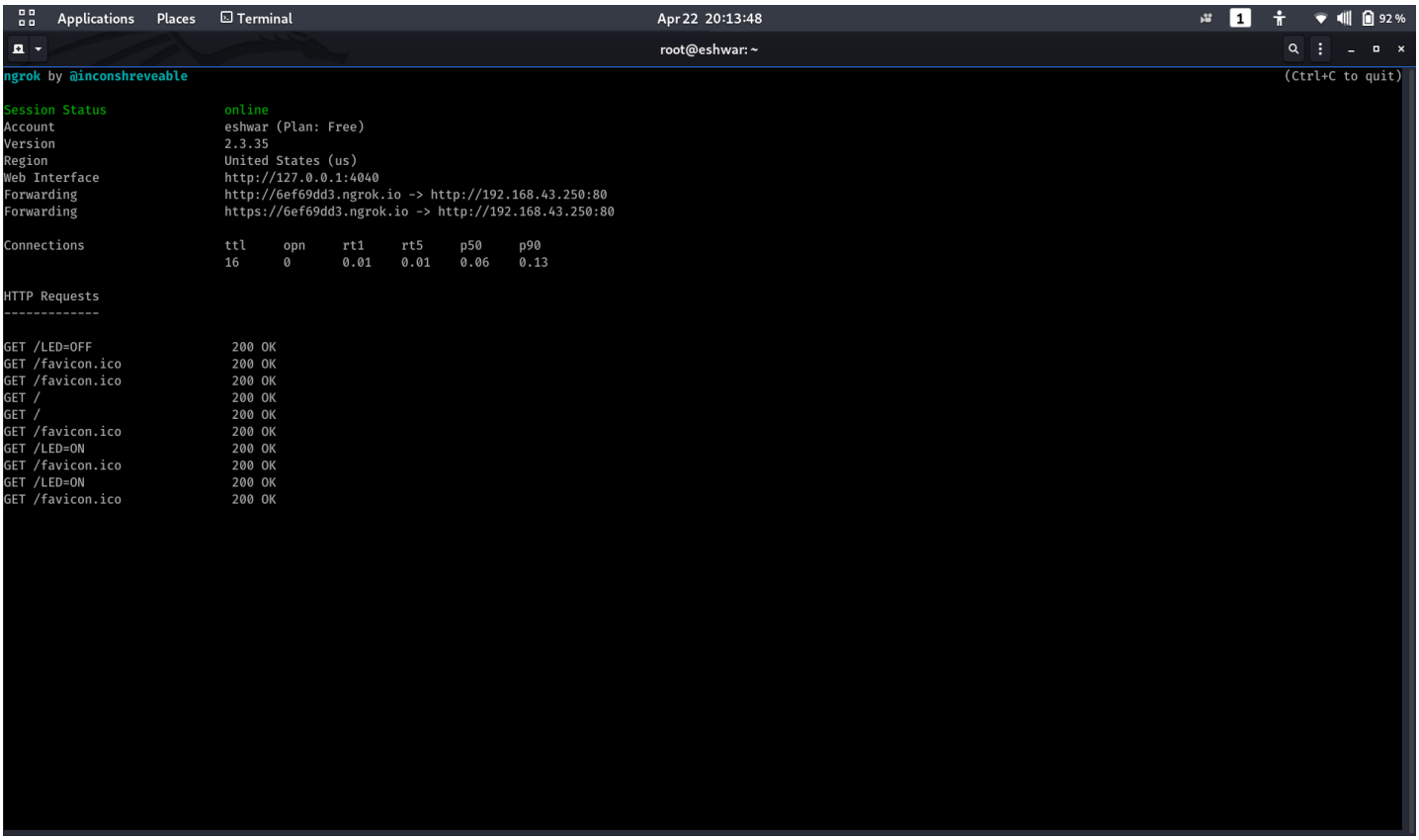
FIG-5.2:Code in ESP8266

FIG-5.3:HTML CODE FOR WEBPAGE IN ESP8266



CHAPTER 6
RESULTS & SCREENSHOTS

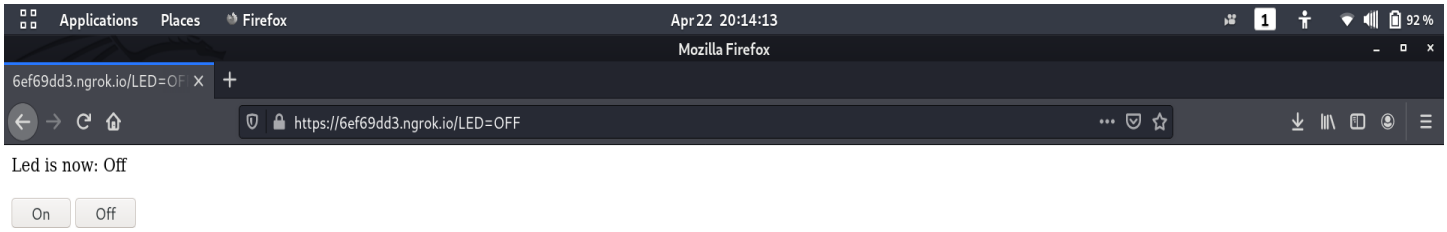
SCREENSHOT_1:



In the above screenshot we can see the NGROK application

"NGROK" Is a multiplatform tunneling, reverse proxy software that establishes secure tunnels from a public endpoint such as internet to a locally running network service while capturing all traffic for detailed inspection and replay.

SCREENSHOT_2:



The above screenshot is the webpage which is controlling the basic led through a browser.

It displays the status of led and the controller to turn off or on.

FROM THE SCREENSHOT_1 we get the port forwarded/reverse tunneled to a website using the NGROK framework.

So we control that using the NGROK link.

CHAPTER 7

FUTURE SCOPE

Although the project seems to be very small as controlling an L.E.D. doesnt matter much,but the principle and frameworks used here can be used in many large number of sectors in many ways.

In the near by coming future we will see the automation and this is an example of it.

Where we will be controlling our appliances in our house while we are at other country.