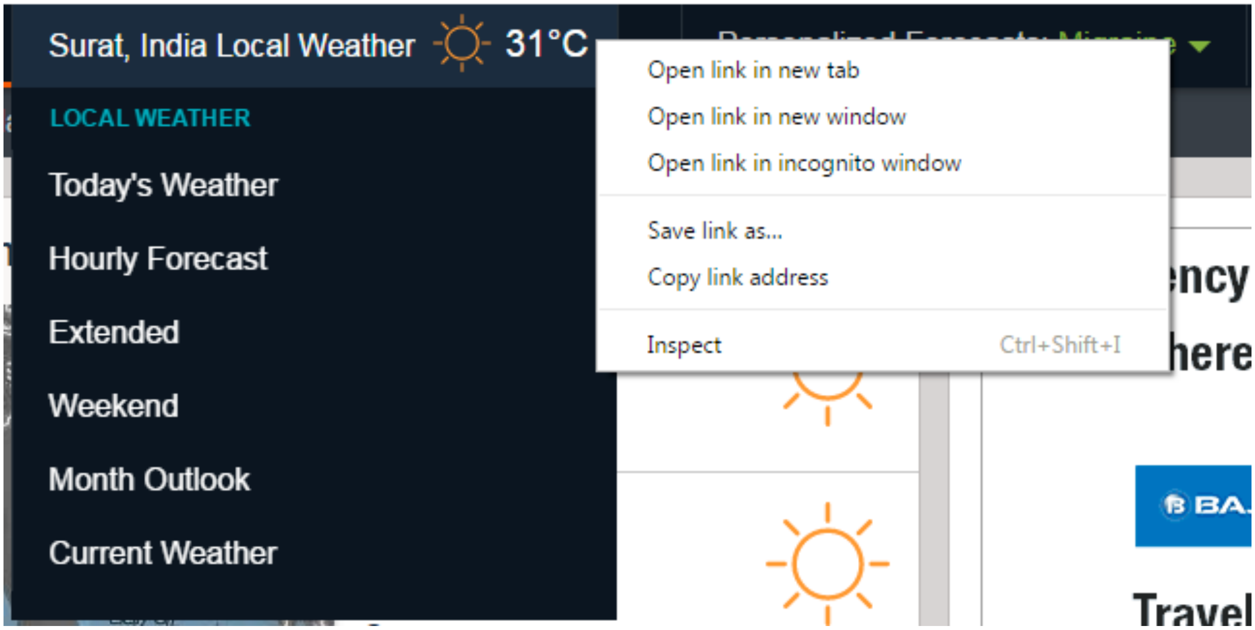
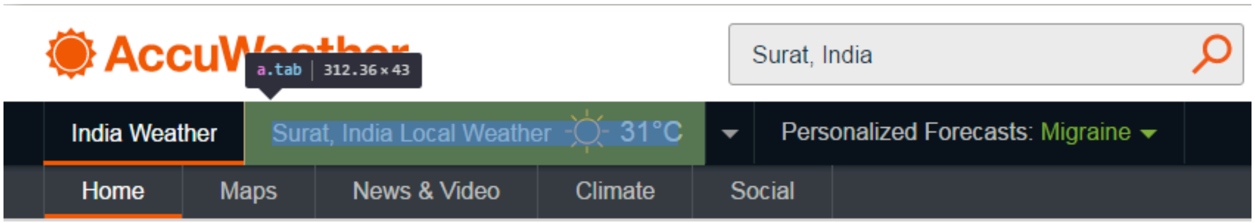
➢ To Get Real Time Weather Data from a Website and Display on Browser (Mobile)

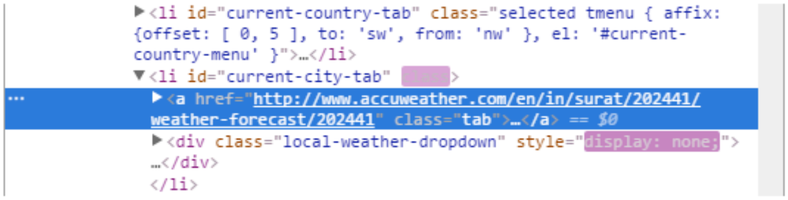
Step 1--Taking Surat's weather data

- Go to www.accuweather.com (For this Demo→ Use Google Chrome Browser)
- Suppose you want to take data of Surat's local weather then type Surat in search box of this website
- It will take you to surat's weather forecast page
- As shown in the below image **Select Surat's weather box**
- then as shown below Click on ->**Inspect**



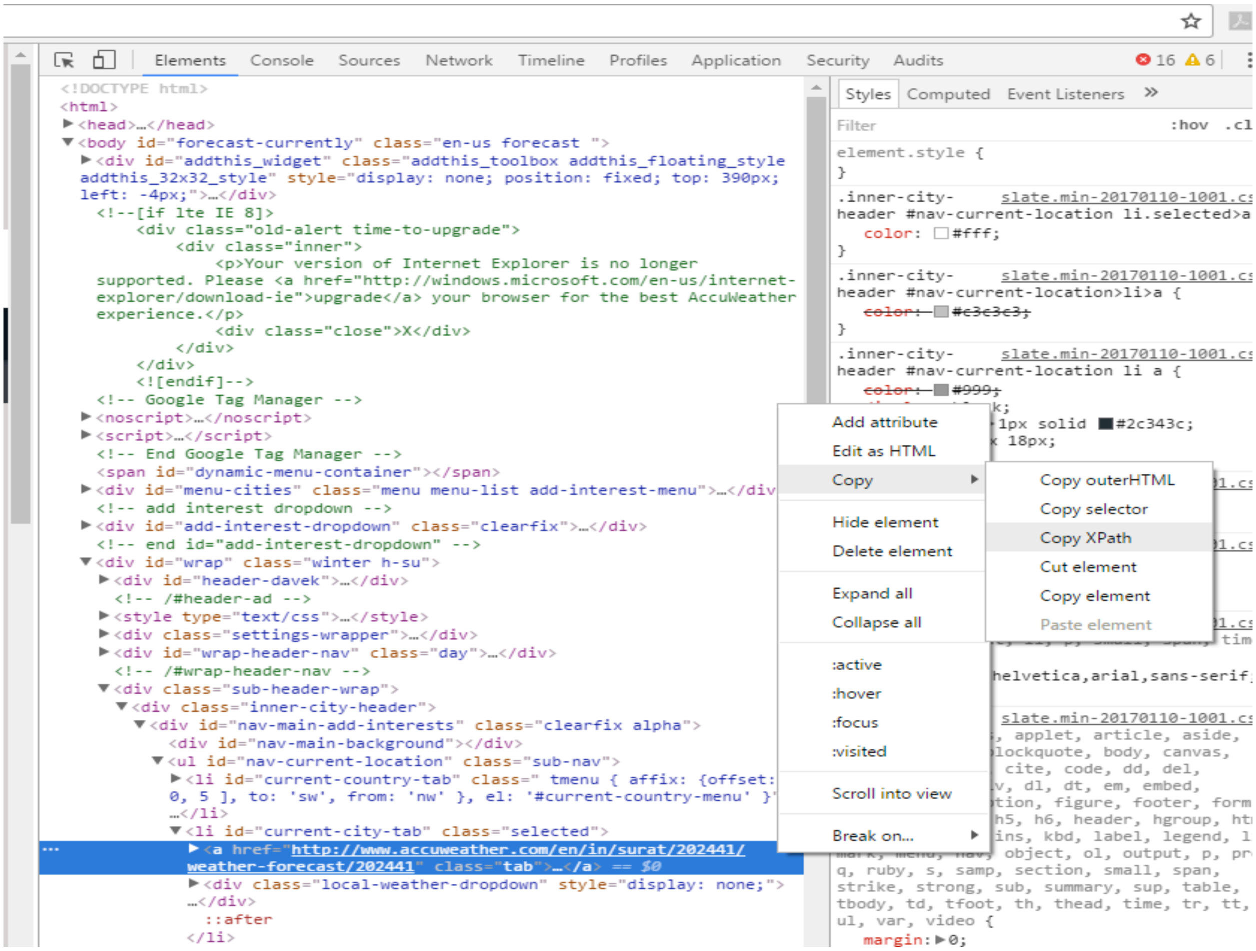
- Select the <a href Html tag> from html source shown in below image





```
▶<li id="current-country-tab" class="selected tmenu { affix:
{offset: [ 0, 5 ], to: 'sw', from: 'nw' }, el: '#current-
country-menu' }">…</li>
▼<li id="current-city-tab" class>
  ▶<a href="http://www.accuweather.com/en/in/surat/202441/
  weather-forecast/202441" class="tab">…</a> == $0
  ▶<div class="local-weather-dropdown" style="display: none;">
  …</div>
  </li>
```

- After selecting the <a href Html tag> Right click on that selected tag and then copy the XPath of the selected tag as shown in below image.



```
<!DOCTYPE html>
<html>
▶<head>…</head>
▼<body id="forecast-currently" class="en-us forecast ">
  ▶<div id="addthis_widget" class="addthis_toolbox addthis_floating_style
  addthis_32x32_style" style="display: none; position: fixed; top: 390px;
  left: -4px;">…</div>
    <!--[if lte IE 8]>
        <div class="old-alert time-to-upgrade">
            <div class="inner">
                <p>Your version of Internet Explorer is no longer
    supported. Please <a href="http://windows.microsoft.com/en-us/internet-
    explorer/download-ie">upgrade</a> your browser for the best AccuWeather
    experience.</p>
                <div class="close">X</div>
            </div>
        </div>
        <![endif]-->
    <!-- Google Tag Manager -->
  ▶<noscript>…</noscript>
  ▶<script>…</script>
    <!-- End Google Tag Manager -->
    <span id="dynamic-menu-container"></span>
  ▶<div id="menu-cities" class="menu menu-list add-interest-menu">…</div
    <!-- add interest dropdown -->
  ▶<div id="add-interest-dropdown" class="clearfix">…</div>
    <!-- end id="add-interest-dropdown" -->
  ▼<div id="wrap" class="winter h-su">
    ▶<div id="header-davek">…</div>
      <!-- /#header-ad -->
    ▶<style type="text/css">…</style>
    ▶<div class="settings-wrapper">…</div>
    ▶<div id="wrap-header-nav" class="day">…</div>
      <!-- /#wrap-header-nav -->
    ▼<div class="sub-header-wrap">
      ▼<div class="inner-city-header">
        ▼<div id="nav-main-add-interests" class="clearfix alpha">
            <div id="nav-main-background"></div>
          ▼<ul id="nav-current-location" class="sub-nav">
            ▶<li id="current-country-tab" class=" tmenu { affix: {offset:
            0, 5 ], to: 'sw', from: 'nw' }, el: '#current-country-menu' }"
            …</li>
            ▼<li id="current-city-tab" class="selected">
...             ▶<a href="http://www.accuweather.com/en/in/surat/202441/
                weather-forecast/202441" class="tab">…</a> == $0
              ▶<div class="local-weather-dropdown" style="display: none;">
                …</div>
                  ::after
                </li>
```

```
element.style {
}
.inner-city-      slate.min-20170110-1001.cs
header #nav-current-location li.selected>a
   color: □#fff;
}
.inner-city-      slate.min-20170110-1001.cs
header #nav-current-location>li>a {
   ~~color: ■#c3c3c3;~~
}
.inner-city-      slate.min-20170110-1001.cs
header #nav-current-location li a {
   ~~color: ■#999;~~
                   k;
                   1px solid ■#2c343c;
                   x 18px;
                                          1.cs
                                          1.cs
                                          1.cs
                                          tim
                   helvetica,arial,sans-serif
                  slate.min-20170110-1001.cs
                   , applet, article, aside,
                   lockquote, body, canvas,
                   , cite, code, dd, del,
                   v, dl, dt, em, embed,
                   tion, figure, footer, form
                   h5, h6, header, hgroup, ht
                   ins, kbd, label, legend, l
                   object, ol, output, p, pr
q, ruby, s, samp, section, small, span,
strike, strong, sub, summary, sup, table,
tbody, td, tfoot, th, thead, time, tr, tt,
ul, var, video {
   margin:▶0;
```

- Temporarily copy the XPath in some editor

Step2--Simplify device communication with Web services and API

- Go to www.thingspeak.com, and make an account there.

- Go to Apps , Select new "ThingHTTP" and Give a suitable name.

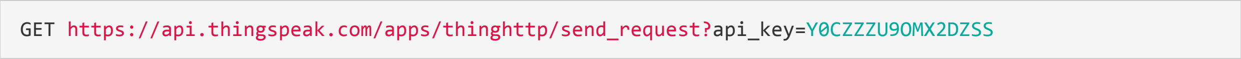
- Paste the URL "http://www.accuweather.com/en/in/surat/202441/weather-forecast/202441", which you can copy from the url of Surat's weather page from Accuweather.com

- Change HTTP version to HTTP 1.1, and

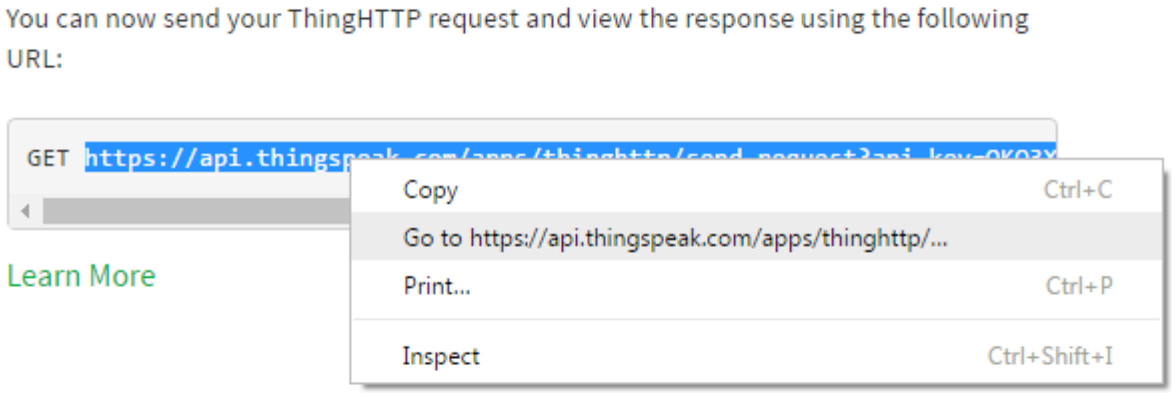
- Paste the copied X-path in parse string.

- And Click on Save button. Now a new URL is generated having ThingSpeak API , which we will be using to get Surat's weather data.

- You will see you got URL with a GET method like this one shown below



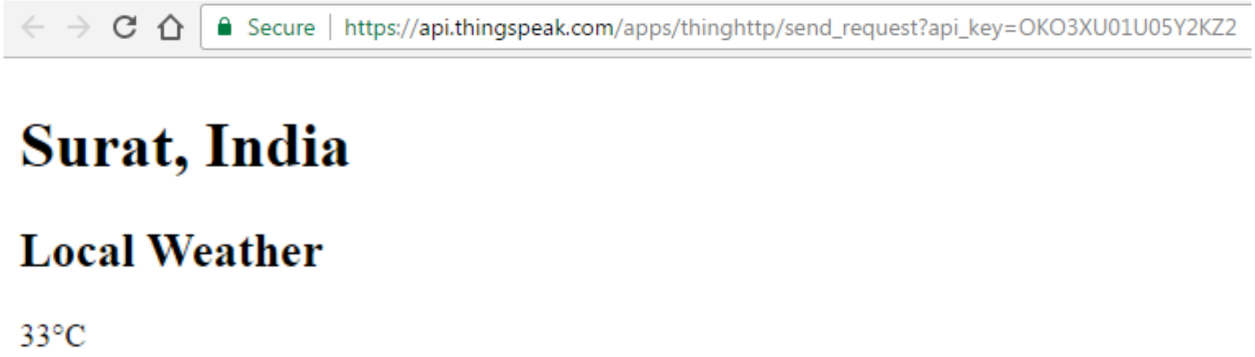
```
GET https://api.thingspeak.com/apps/thinghttp/send_request?api_key=Y0CZZZU9OMX2DZSS
```



You can now send your ThingHTTP request and view the response using the following URL:

```
GET https://api.thingspeak.com/apps/thinghttp/send_request?api_key=OKO3X
```

- This will give you a new web page



Secure
https://api.thingspeak.com/apps/thinghttp/send_request?api_key=OKO3XU01U05Y2KZ2

Surat, India

Local Weather

33°C

- That is how you can fetch data of Surat's Local weather.

Step3--Using mobile as Client and ESP module as Server

- Similarly you can fetch any other data from any other Website.
- Now we will see how to connect our STAIP of server module or client module to mobile browser that will provide us with Surat's Local weather data on Mobile's Web Page (making our mobile as client which requests information from our ESP module acting as a server)
- AT+RST
- AT+CWMODE=3
- AT+CWLAP
- AT+CWJAP
- AT+CIPMUX=1

- AT+CIPSERVER=1,4444 { Note the STAIP of our server module that is from the module where you have given}

- AT+CIFSR {displays details of the module. Note station IP address, STAIP. e.g. 192.168.43.131}

- Enter that IP in the URL address entrance of your mobile web-browser
  https://192.168.43.131:4444

- Note: This will give you below shown information in PC Terminal

```
+IPD,0,406:GET / HTTP/1.1
Host: 192.168.43.169:4444
Connection: keep-alive
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Linux; Android 6.0; Eluga_Arc_2 Build/MRA58K) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/50.0.2661.89 Mobile Safari/537.36
Accept-Encoding: gzip, deflate, sdch
Accept-Language: en-US,en;q=0.8
```

- Now we will send data to our channel 0 (zero) using :
- AT+CIPSEND 0, number of characters of URL

Example:

/*Surat Local Weather*/

GET https://api.thingspeak.com/apps/thinghttp/send_request?api_key=OKO3XU01U05Y2KZ2

- Using CIPSEND command which gives us Surat's Local weather web page

- So we will write a short HTML code for a web page with a hyperlink that will take you to our Result(Surat's weather page) of GET method URL

- This is our short HTML code shown below

```
<html>
<head>
<title>Surat Local Weather</title>
</head>
<body>
<p>Click following link</p>
<a href="https://api.thingspeak.com/apps/thinghttp/send_request?api_key=OKO3XU01U05Y2KZ2"
target="_blank">Surat Local Weather Today</a>
</body>
</html>
```

- Now Copy this code and paste it on website called **http://www.lettercount.com/**which will give you number of characters present in the code. In my case it was 235. Then give AT command as

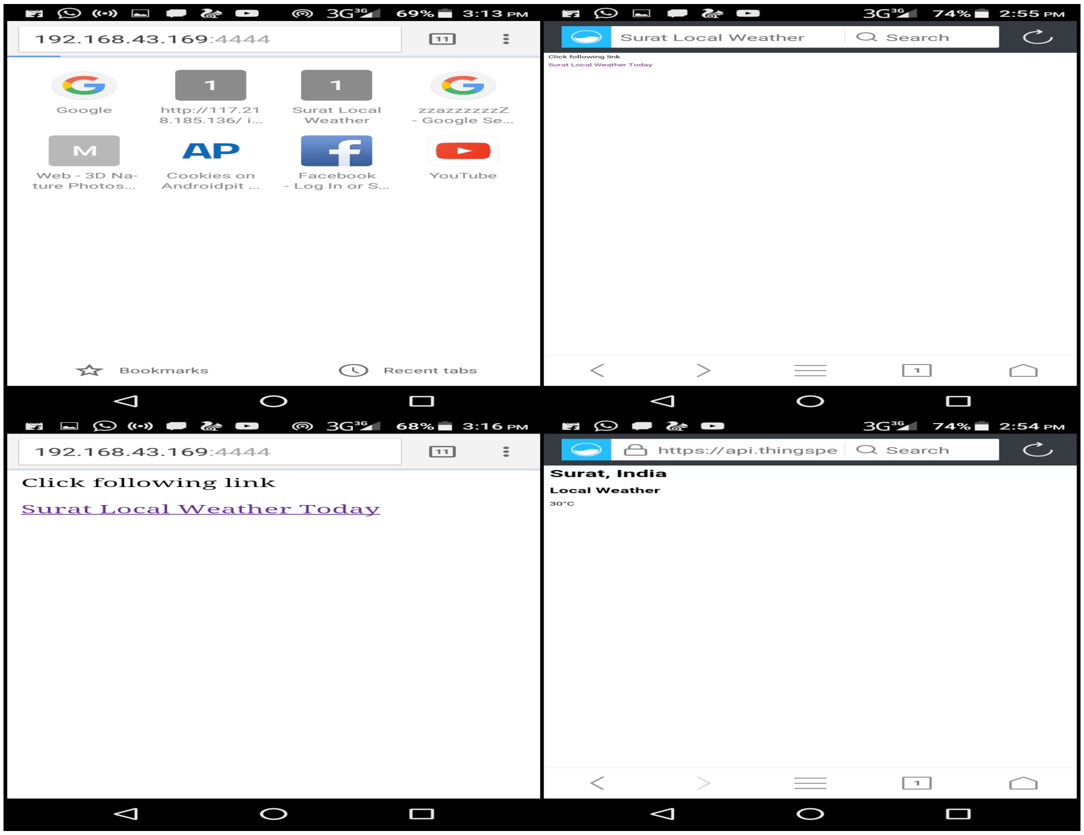
```
AT+CIPSEND=0,235
OK
```

```
><html><head><title>Surat Local Weather</title></head><body><p>Click following link</p><a
href="https://api.thingspeak.com/apps/thinghttp/send_request?api_key=OKO3XU01U05Y2KZ2" target="_blank">Surat
Local Weather Today</a></body></html>

 Recv 235 bytes
SEND OK
```

Step4--Displaying Result on Mobile Web Browser

- After doing this you must see Result on web page as shown on below page.
- Now get back to Mobile Web Page i.e. https://192.168.43.169:4444
- Depending on the Browser type you are using like UC Browser, Mozilla or Google Chrome or Default Browser of your mobile , you will get different results in User Interfaces.



Click following link

Surat Local Weather Today

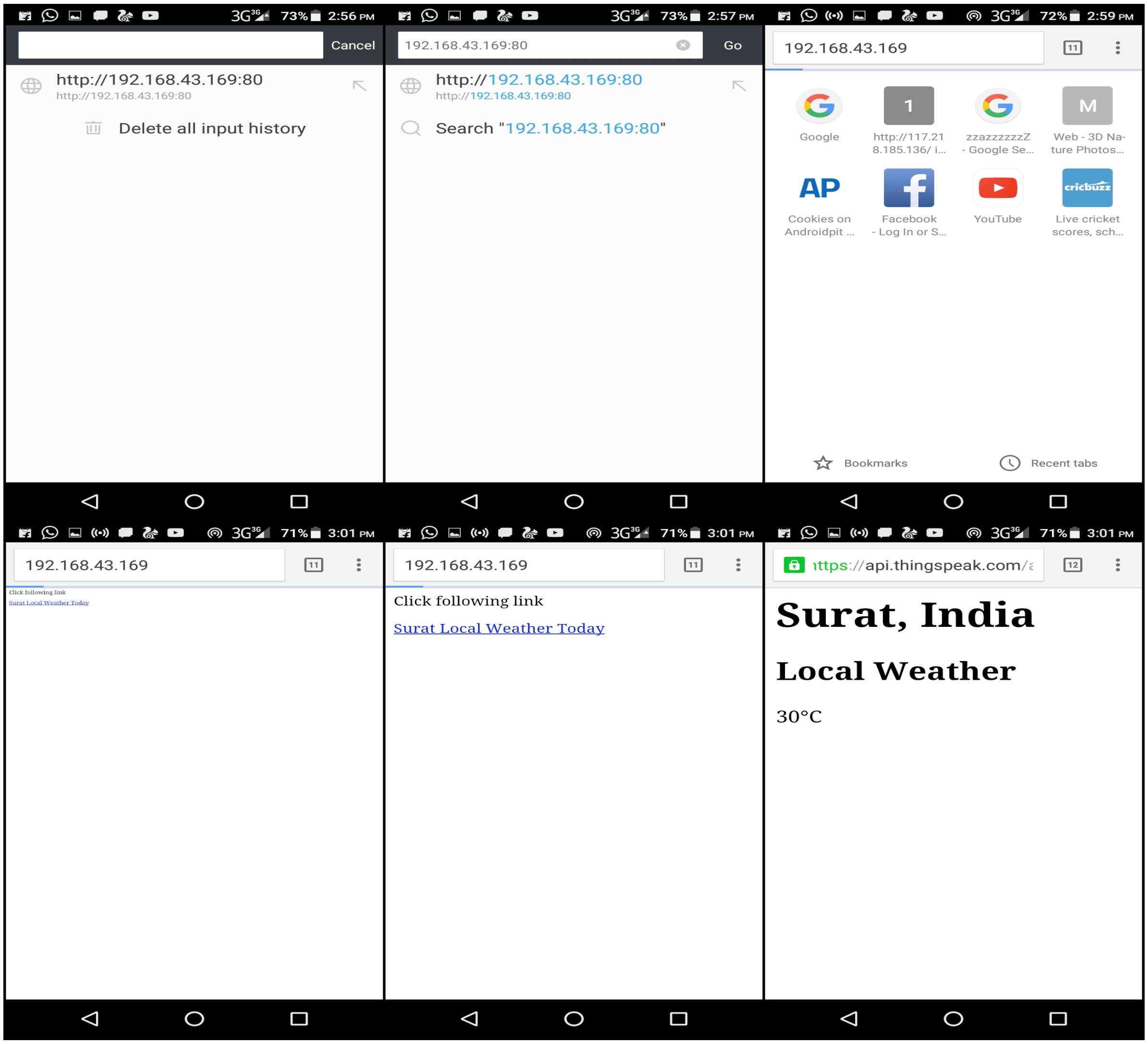
Surat, India

Local Weather

30°C

- In case of problem in sending the data: repeat a. Mobile Web Page i.e. https://192.168.43.169:4444 on browser, b. AT+CIPSEND command again
- AT+CIPCLOSE=channel_number
- AT+CIPSERVER=0 (“0” is for closing the server)

Similarly we can Test with Default HTTP port i.e 80 which makes port information invisible as it is a default one for HTTP protocol.



Click following link

Surat Local Weather Today

Click following link

Surat Local Weather Today

Surat, India

Local Weather

30°C

- When you Click the Hyperlink Surat Local Weather Today you get to new Page where you will see **Surat’s Local Weather**

- After clicking on Surat Local Weather Today you will see in Flash Magic that your connection has been closed and you got the resultant page showing Local Weather data.

- If you don’t get the resultant page of Weather data then manually CLOSE the connection in Flash magic using AT+CIPCLOSE=<channel no.>

- This is because when your connection gets closed, we can see resultant web page, as this is not a dynamic process of sending , processing and receiving the data because we are just using a wifi module only having a small firmware (which can process TCP/IP orotocol, booting and AT commands so it is not a intelligent device like our computer which has a OS in it that will manage processes themselves like scheduling process or tasks, managing space,memory etc) with sending, receiving data and closing the connections. So we have to do it manually.