PicoMite W network course

Chapter 8

Adding graphics to your webpage

There is one thing that makes your webpage often more visually attractive and that's graphics.

There is one thing though that you thoroughly need to understand. PicoMiteWeb sends HTML code to your computer/tablet/phone. PicoMiteWeb just SENDS the code. The HTML code itself is turned into a webpage on your COMPUTER. In other words. The PicoMiteWeb sends text to your computer (HTML code is plain text) and your COMPUTER translates that into a webpage.
This is the same as when you write a program with MMEdit and send that to the Pico. The PicoMite takes the text (your basic program is a text) interprets it and runs the program.

This means that if the webpage needs some information it will look for that information on your computer and not on the PicoMiteWeb. So if the webpage needs some information we need to tell it where to get that information. This is the same with a basic program. If the program needs a stored variable it wil try to load that from the Pico's memory or SD card but not from the computer where the program was written.
Keep this in mind and things will get clear in the upcoming pages.

Getting graphics.

There are several ways to get graphics to enhance your webpage. You can make them yourself or you can get them from a site on the internet.
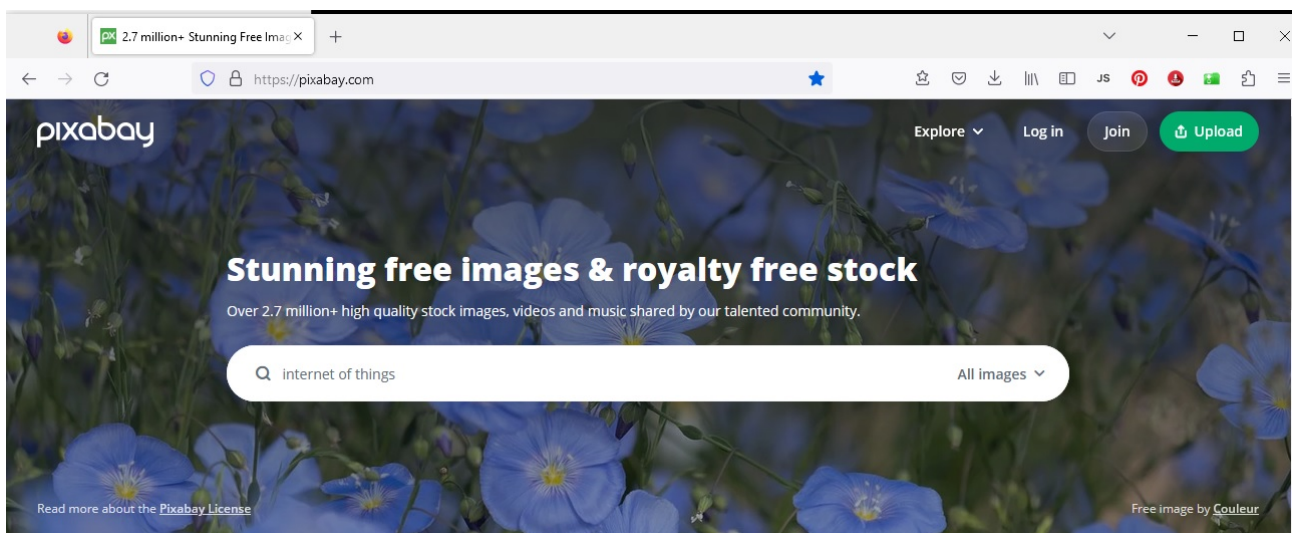
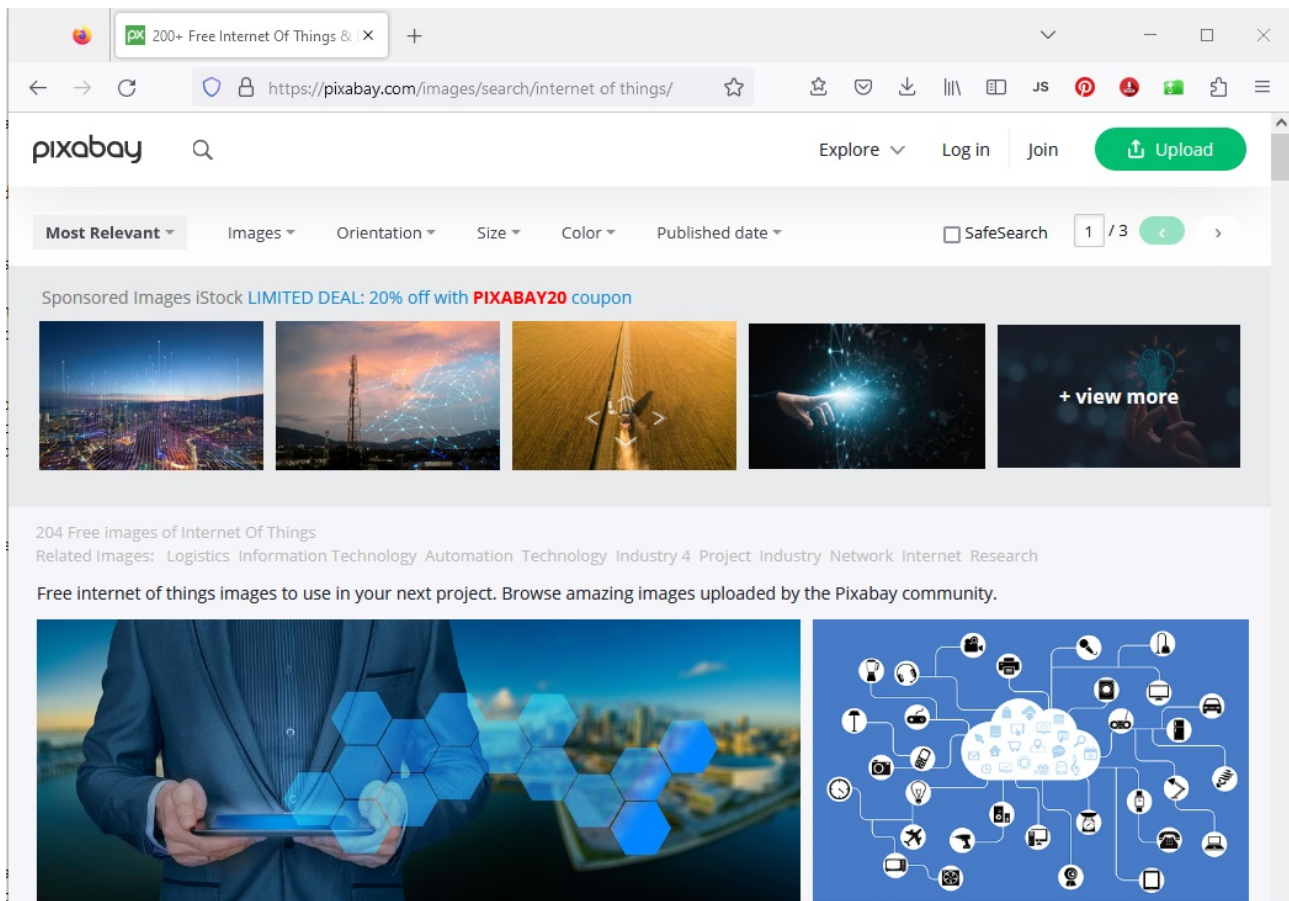A site where you can get free images for example is:
https://pixabay.com/

If you need smaller images like icons you can find lots of them for free at the following site:
**https://www.flaticon.com/**

So let's start with getting a picture from pixabay for our webpage.

Point your browser to **https://pixabay.com/** and in the search option type "internet of things"

We get loads of pictures but I saw one I liked immediately on the first page. It was the second picture. Remember this is just a demonstration for you to show how to put pictures/images on a webpage. So choose any picture you want.
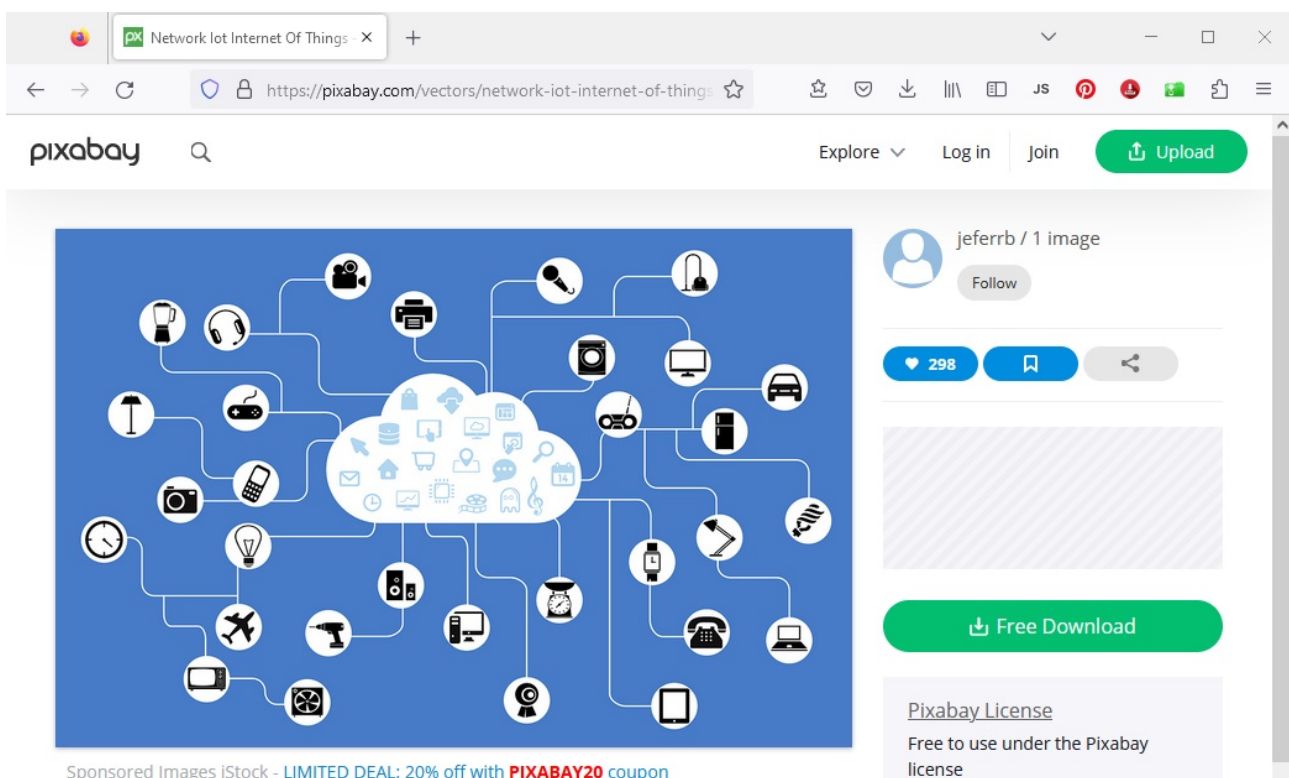
Click on the picture and you will be directed to the download page. For your convenience I will give you the download link here:

https://pixabay.com/vectors/network-iot-internet-of-things-782707/
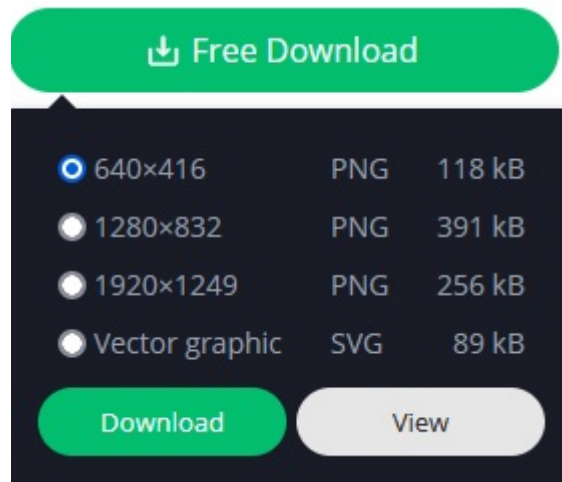
Click on the green download button and a pop-up menu opens that allows you to choose a resolution. For our example I chose the lower resolution of 640 x 416 pixels in PNG format.

Download the picture to your computer.

As described before a webpage will look for files on the computer where it is opened. So we could save this graphic on our computer. But what if the webpage is opened from your computer and from your tablet. Then the tablet will not find the graphic. And what if you send the program to someone else (like another forum member). That person will not have access to the graphics if they are on your computer unless you supply the program and HTML code and the graphics etc.

To solve this problem most webpages host their larger files on an external server. And that is what we are also going to do.

Postimage.org

I have used postimage frequently for my projects and always with good results. Next to that Postimage is free which in my view (being Dutch) is a great advantage.

If you post an image to postimage.org you will get a link. If you copy that link and send it to friends, family, forum members etc. anyone can load that image using that link. So you do not have to follow the next step as I will provide you with the link to the image on Postimage.org so you can use that link in our code.
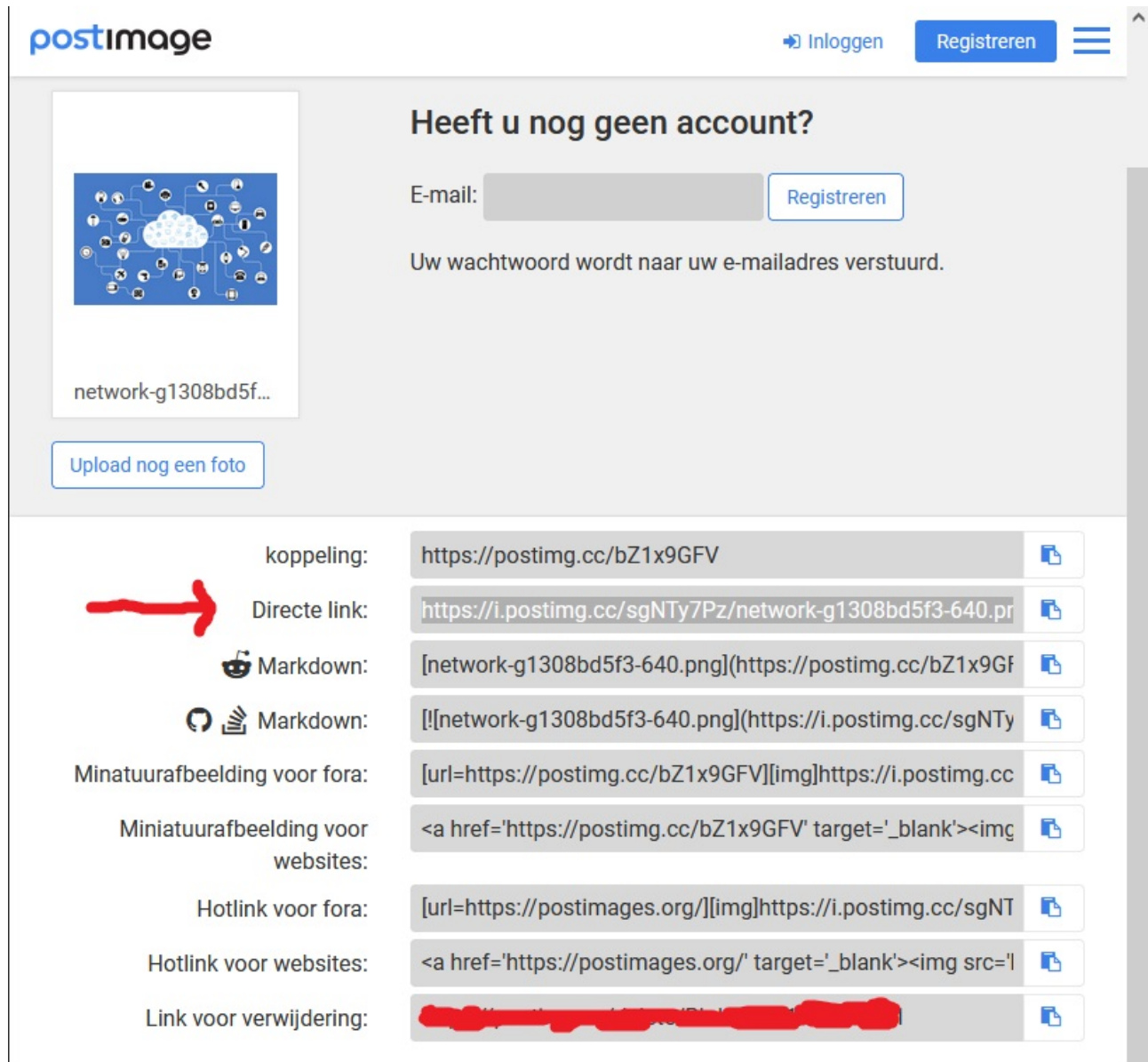
Point your browser to **https://postimages.org/**
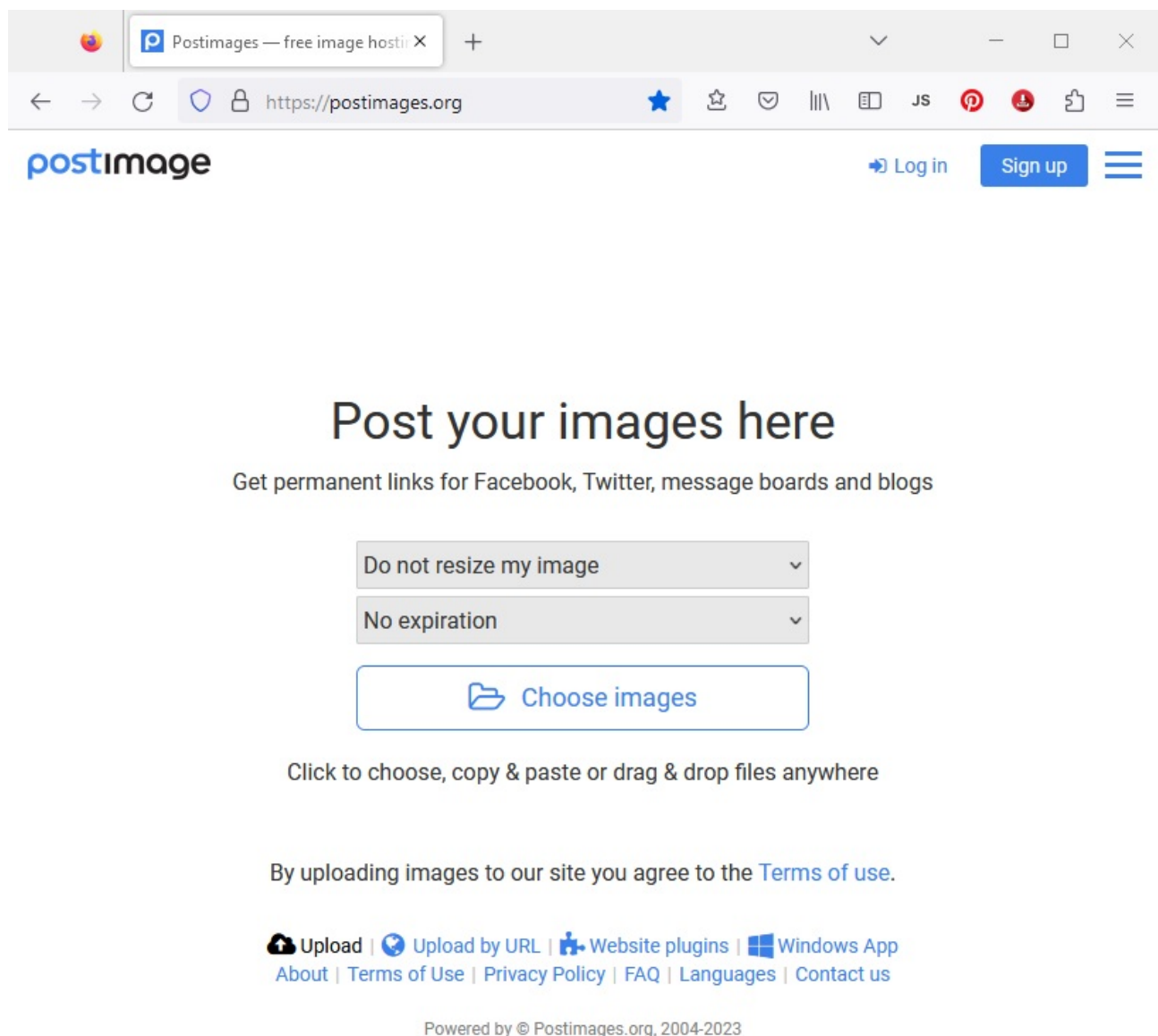
Postimage.org is free and really as free as they can get. You even do not have to register to use the service.
If you do register it is easier to keep track of all the links to the images/photo's you

have uploaded. If you do not register you need to keep track of them yourself.

First step is to upload the image. That is simple. Click the blue Choose images button and select the image you want to upload. You can also locate the image on your computer and drag it to the opening screen of postimage.org. You can set an expiring date if you want. I always leave the picure on the server for eternity as you never know when you might need it.

Immediately after uploading the image you are presented with the above screen. There are several options. One option is a link to remove the picture. I painted that option red so no one of you can accidentally erase the image from the server.

The second line (where the arrow points) is the Direct Link line which we need for our HTML code. Don't worry **postimage.org** is in your own language. I just forgot to set it in English.

So in our HTML code we will need this link:

https://i.postimg.cc/sgNTy7Pz/network-g1308bd5f3-640.png

You can upload as many pictures and images as you like. Just don't violate their Terms of use like uploading copyrighted pictures etc.

Getting the picture on your webpage.

First step is to alter the basic program.

We start with the program of chapter 7. So load the program with the name "server07.bas" now change this line:

```
WEB transmit PAGE a%,"seven.html"
```

into:

```
WEB transmit PAGE a%,"eight.html"
```

That is all.

For your convenience I herebye give you again the full program. Please save it on your computer AND on the PicoMiteWeb as "server08.bas".

```
Dim buff%(512)
WEB ntp 1
PRINT
PRINT "Your IP address is : " + MM.Info(ip address)
PRINT

WEB tcp interrupt serverstart

Do
  randomnum = Int(Rnd(100)*100)
Loop

Sub serverstart
Local p%, t%
For a%=1 To MM.Info(MAX connections)
    LongString CLEAR buff%()
    WEB tcp READ a%,buff%()edit

    p%=LInStr(buff%(),"GET")
    t%=LInStr(buff%(),"HTTP")
   s$=""
   If (p%<>0) And  (t%<>0) And (t%>p%) Then
     s$=LGetStr$(buff%(),p%,t%-p%+4)
     Print "String is ",s$
   EndIf
   If Instr(s$,"HTTP") Then
```

```
      Print "sending page"
      WEB transmit PAGE a%,"eight.html"
    EndIf
 Next a%
End Sub
```

Next we have to change the HTML code.

Load seven.html in your MMEdit editor and edit it like this:

```
<!DOCTYPE html>

<header>
<title>PicoMiteWeb test page</title>

<meta name="viewport" content="width=device-width,
initial-scale=1.0">

</header>

<body style="background-color: PowderBlue">

<h1 style = "color: red">Test page for the
PicoMiteWeb</h1>
<br>
 <img src="https://i.postimg.cc/sgNTy7Pz/network-
g1308bd5f3-640.png" alt="IOT picture">
<br>
<br>
The temperature = {randomnum}
<br>

<body>

</html>
```

Save this html code as "eight.html" on your computer and on the PicoMiteWeb.

As you can see the changes from the previous html file are minimal.
I added somer <br> lines which put an empty line at some places. And there is one new line in the Code:

```
<img src="https://i.postimg.cc/sgNTy7Pz/network-g1308bd5f3-640.png" alt="IOT picture">
```

I think this is self explaining.
We put an image <img> on a certain place on the webpage. The source (where the webpage must get the image) is
`src="https://i.postimg.cc/sgNTy7Pz/network-g1308bd5f3-640.png"`.
This is the link you found on the postimage.org webpage which I marked with the red arrow.

The only thing that might need some explanation is the code `alt="IOT picture"`
If for some reason the image can not be found, like the postimage.org server is down or we have a bad internet connection the webpage will still work but it posts the text "IOT picture" or our webpage in stead of the picture. The name "alt" is just an abbreviation for alternative.
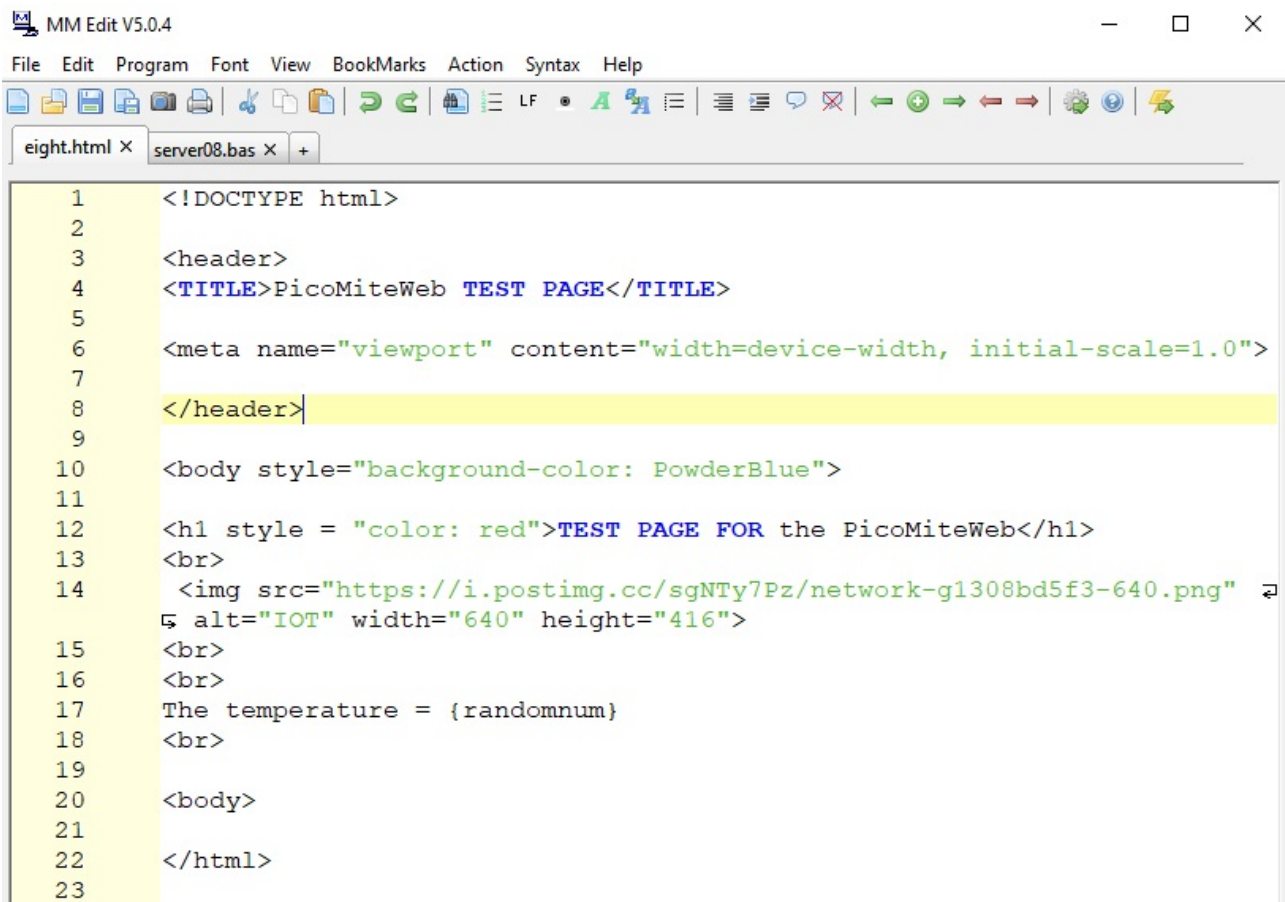
Done.
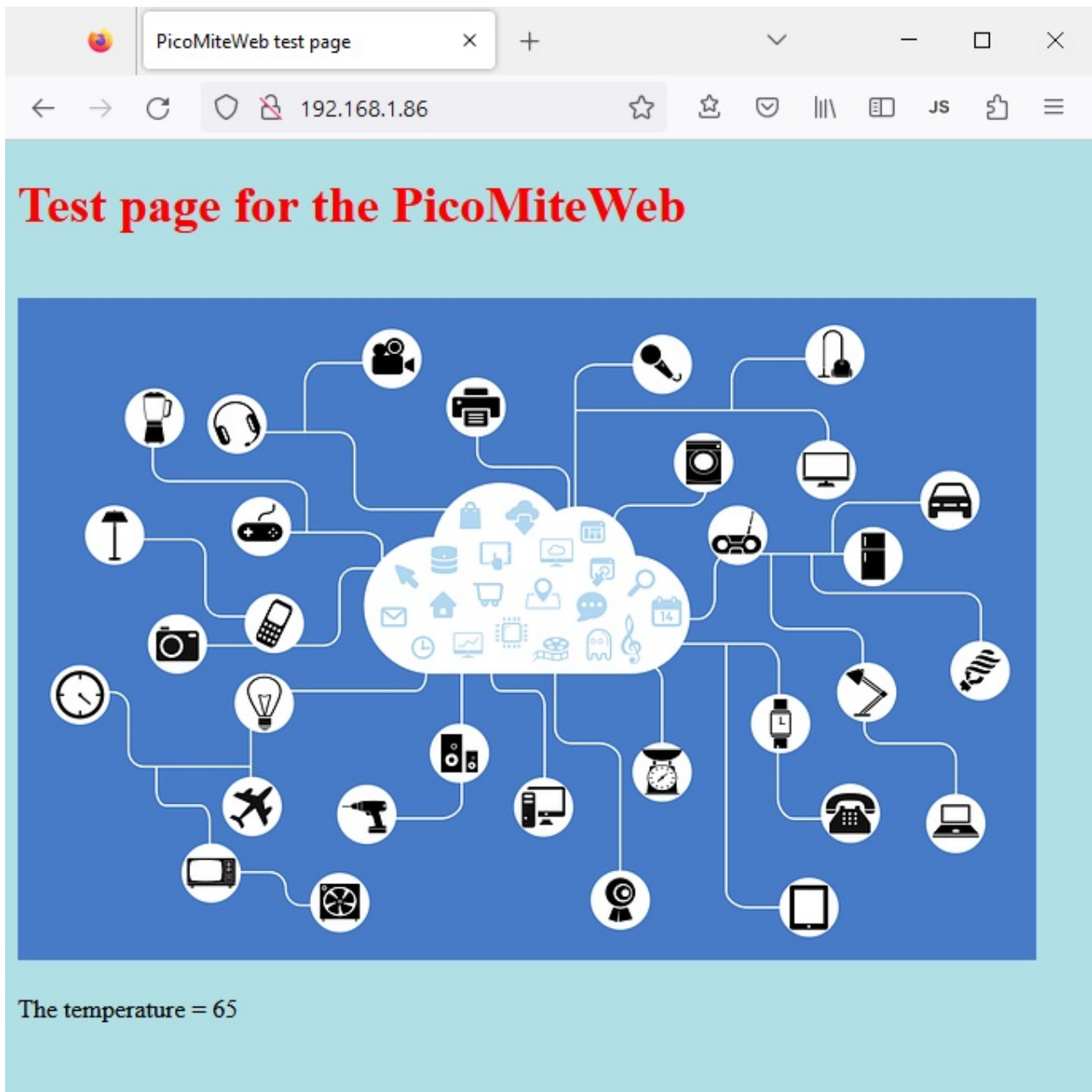
And this is how our webpage looks now.

This also shows why I like postimage.org. Loading a picture on your webpage from their server is lightning fast !!

Altering the size of the image.

When we downloaded the original image from the pixabay site we chose for a picture that was 640 pixels wide and 416 pixels height.

Maybe this width and height are not to your liking. So maybe you want to alter them. Well that is easy.

Just alter in the html code the line:

`<img src="https://i.postimg.cc/sgNTy7Pz/network-g1308bd5f3-640.png" alt="IOT picture">`

in

`<img src="https://i.postimg.cc/sgNTy7Pz/network-g1308bd5f3-640.png" alt="IOT" width="320" height="208">`

I added two parameters being width = "320" and height = "208". These set the values for the image to values we want. Plaese note that you have to take care of the ratio between widt and height yourself. If you don't calculate them well you will get strangely stretched pictures on your screen.

I urge you to "play" with this functionality as we are going to use this in upcoming chapters.
Also note that you are not limited to putting just 1 picture on your webpage. You may put as many as you want in any size you choose.