# WE|O

Web of Things Platform

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# Want to make Internet of Things?

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2015

25 billion connected objects

2020

50 billion connected objects

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but...

How to innovate?

How to create NéoObjects?

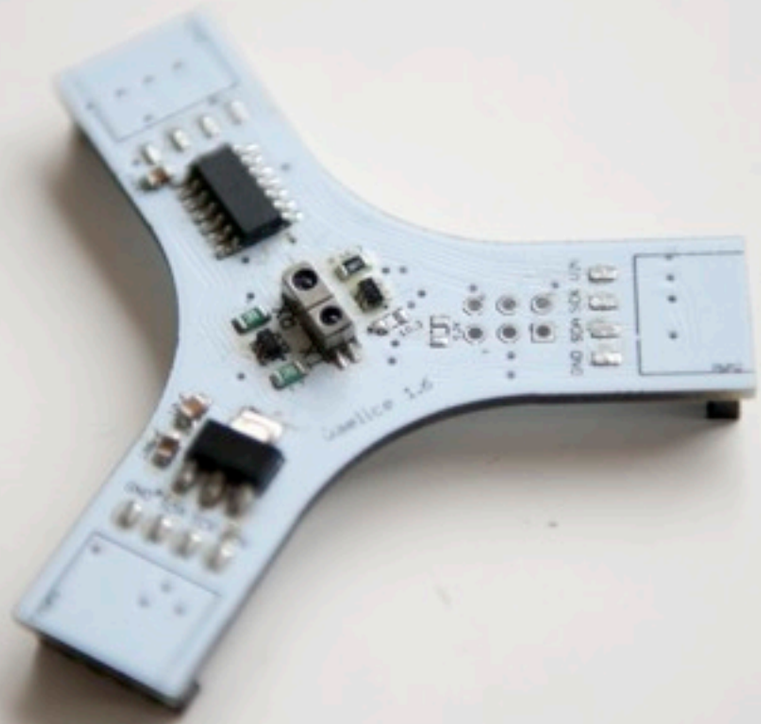
how to

LEARN

INNOVATE

PRODUCE

?



usages, poetry


http://www.nodesign.net/portfolio/waelice

Today we have one user friendly tool that comes from Italy

ARDUINO

is great to learn basics but...

We need versatile and friendly platform that can be easily connected with Web services or offer new ones. Connecting objects must be as easy as “hello world“

Today we have miniature and cheap computer coming from UK

Raspberry Pi

is great real computer but...

NéoObjects need dedicated interfaces and hardware. Computers are too generalist platform for them. Also, they need wireless connectivity.

# How we are making NéoObjects today?

Think USAGE
Think Object

MAKE!

but...

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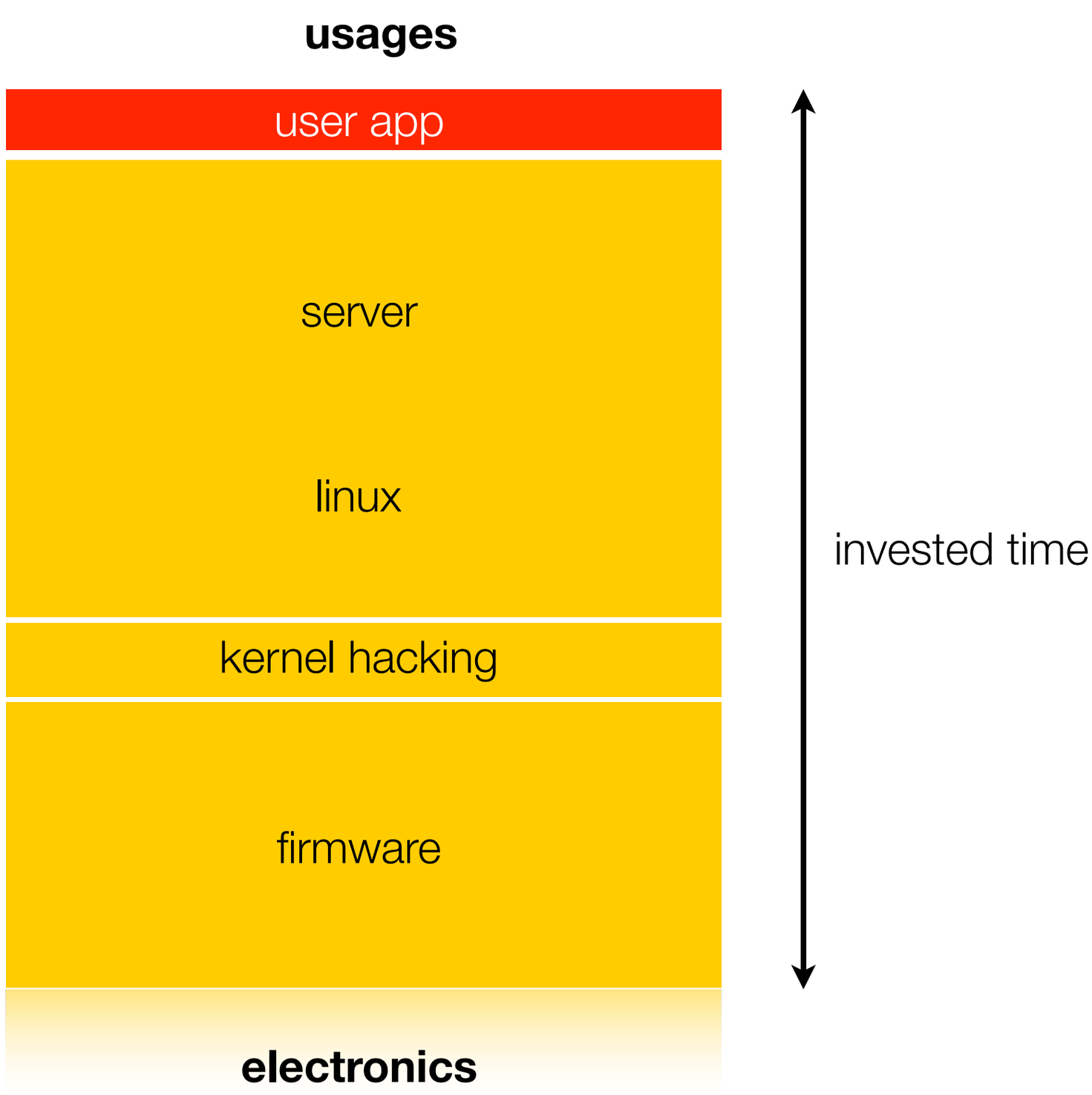


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Hey, do you know that firmware hacking, crosscompiling, and Linux patching are not for kids ;-)

but that's long way to go...

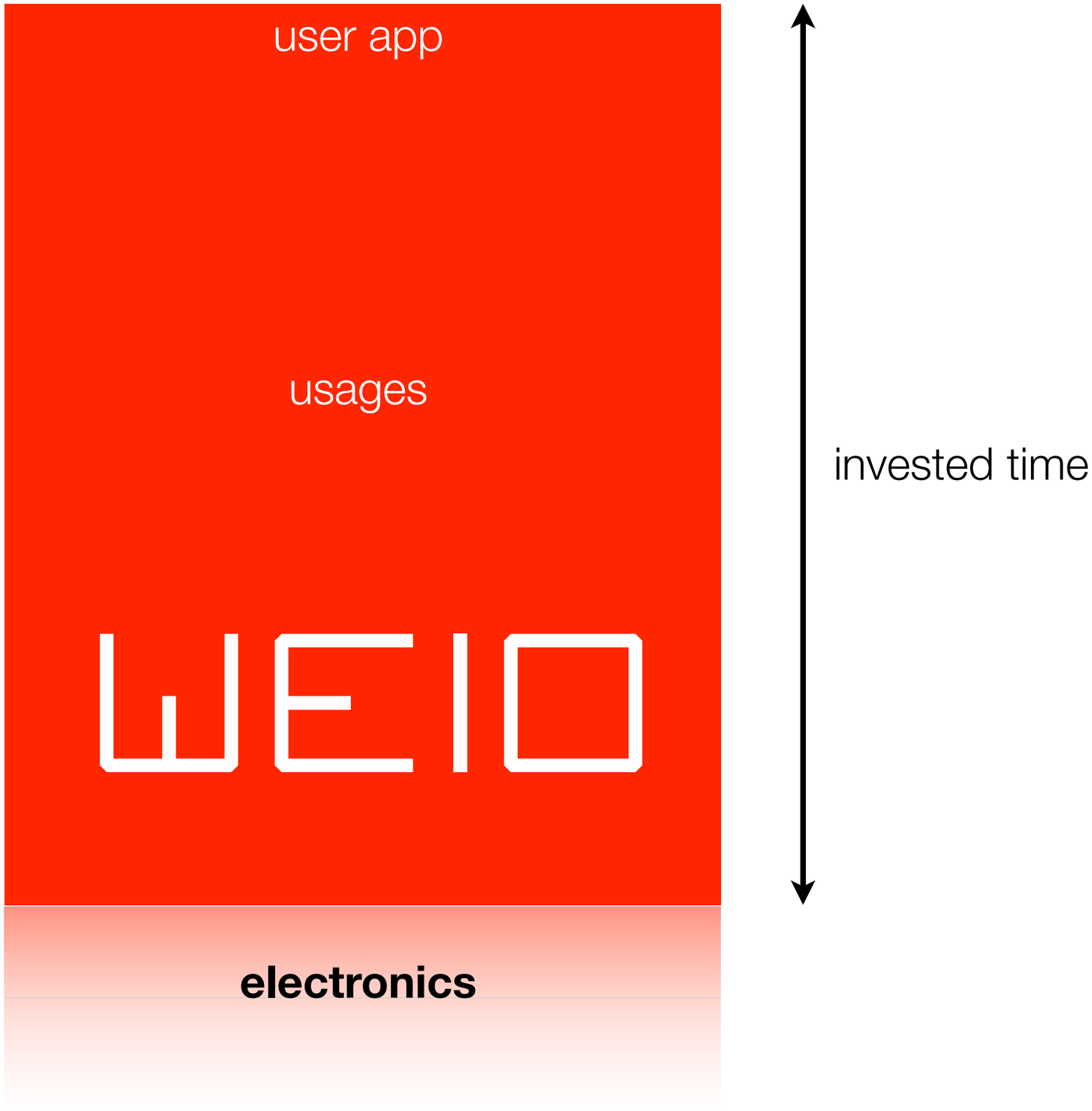
WHO WILL LEARN ALL OF THIS?

here we go!

WE|O

We need new friendly and desirable interfaces that will connect Web directly to electronics. Thus people will think more USAGE than how to do something

## Web language

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We need new graphical environment that will offer possibility to make rich user applications and new graphical programming tools and...

...it must be zero installation, super easy configuration and cross platform (desktop & mobile) and...

... we must be able to possess our development tools at any time...

# And it must be Open Source!

... and innovative USAGES will follow with beautiful interfaces once you have developed that environment

that environment is called Web.

What is

# WE|O

# Prototype, produce and learn to make NéoObjects only using the language of the Web

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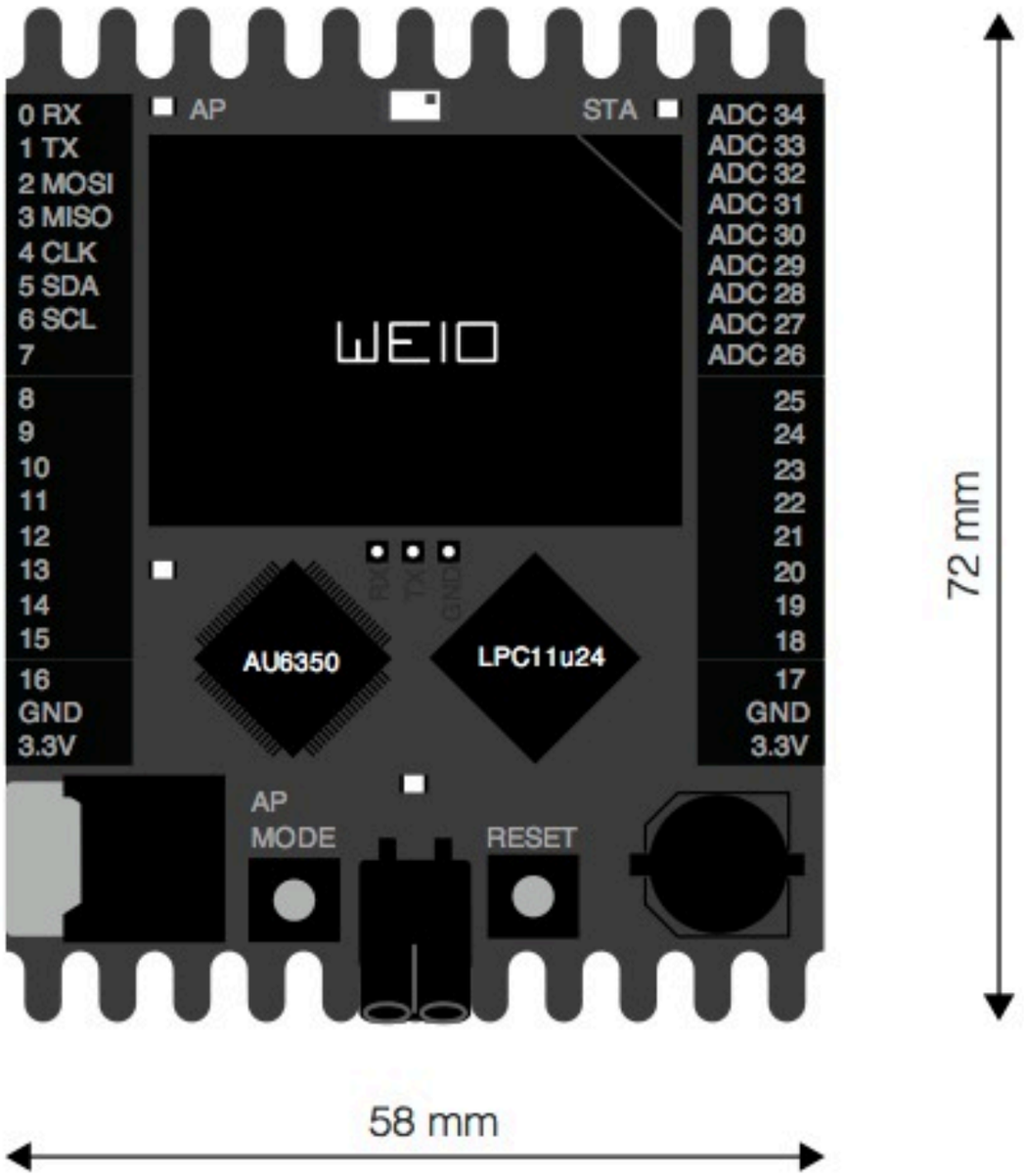
# How many of you know to make simple Web site?

# How many of you know to program hardware?

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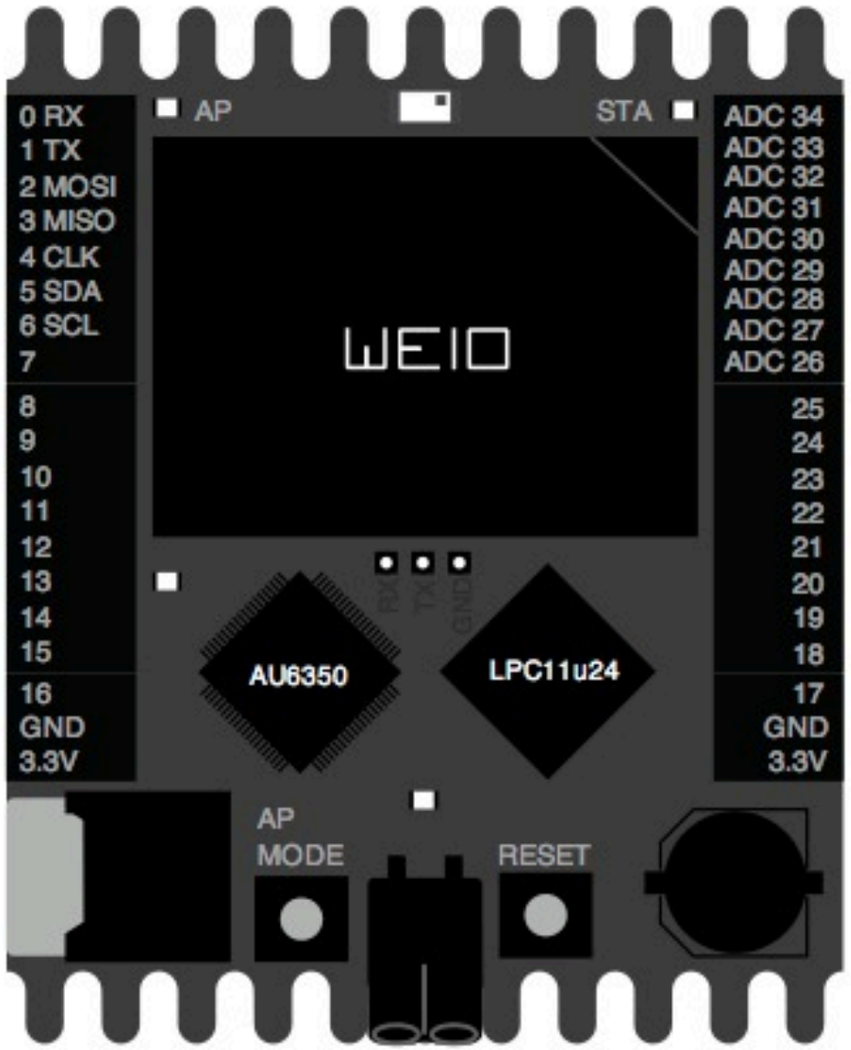


# All in one

Plug & Web
Web & Objects
Wireless & Less wires

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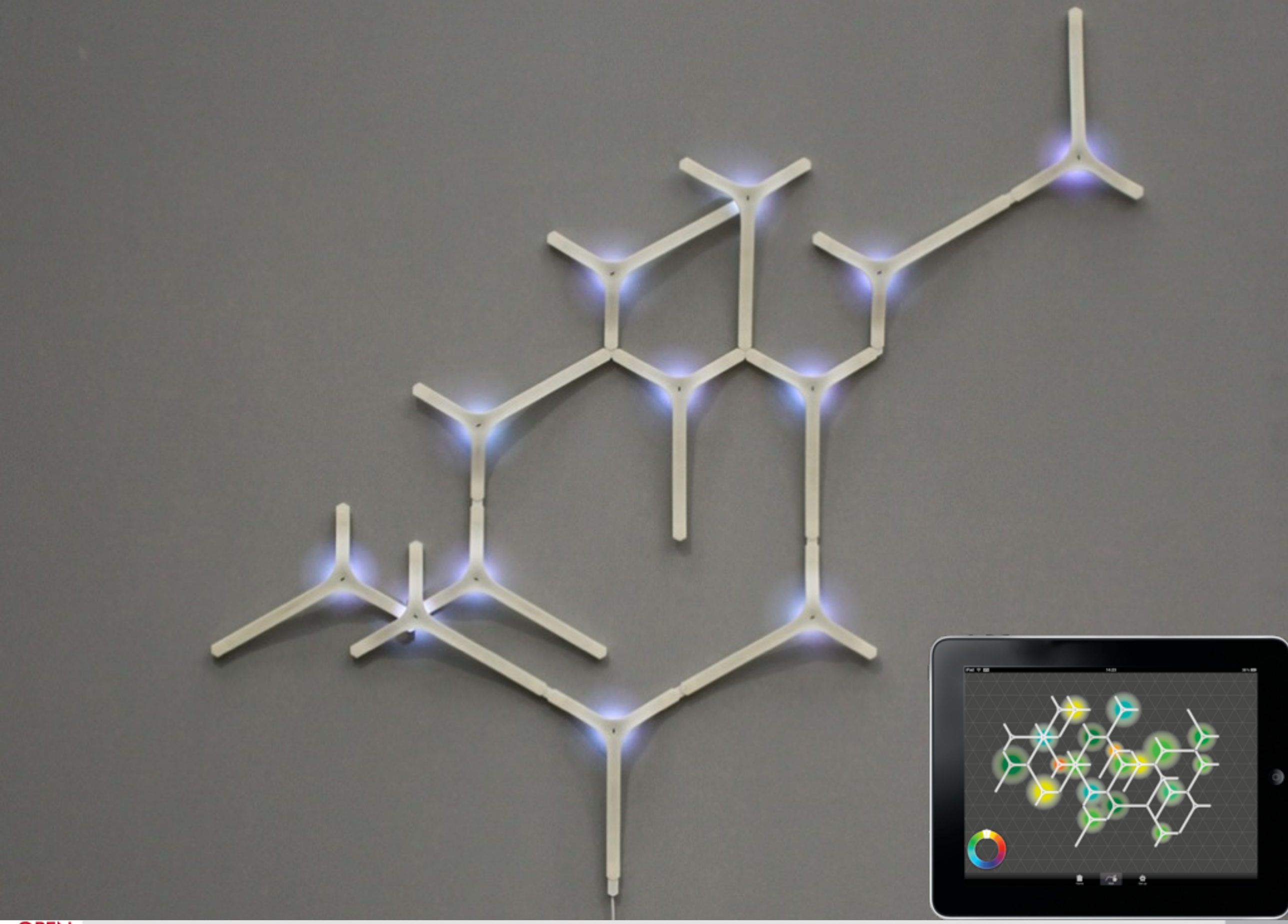
WeIO makes that each object has it's own web site, more precisely has it's own WebApp

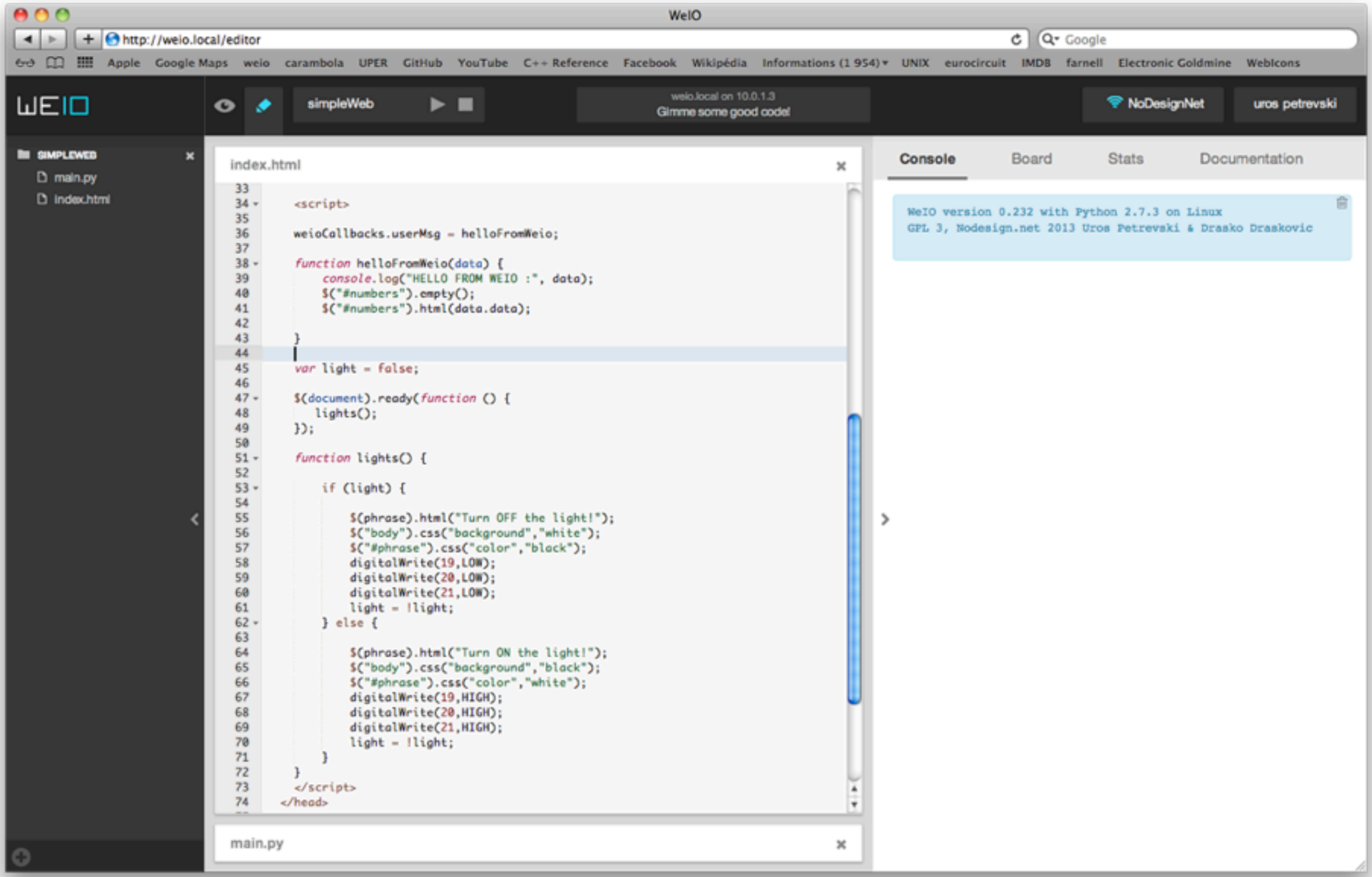
Finally programing connected objects means making WebApps for your objects

# What we make with WeIO at nodesign.net




http://vimeo.com/59979841

# How WeIO programming environment looks like?

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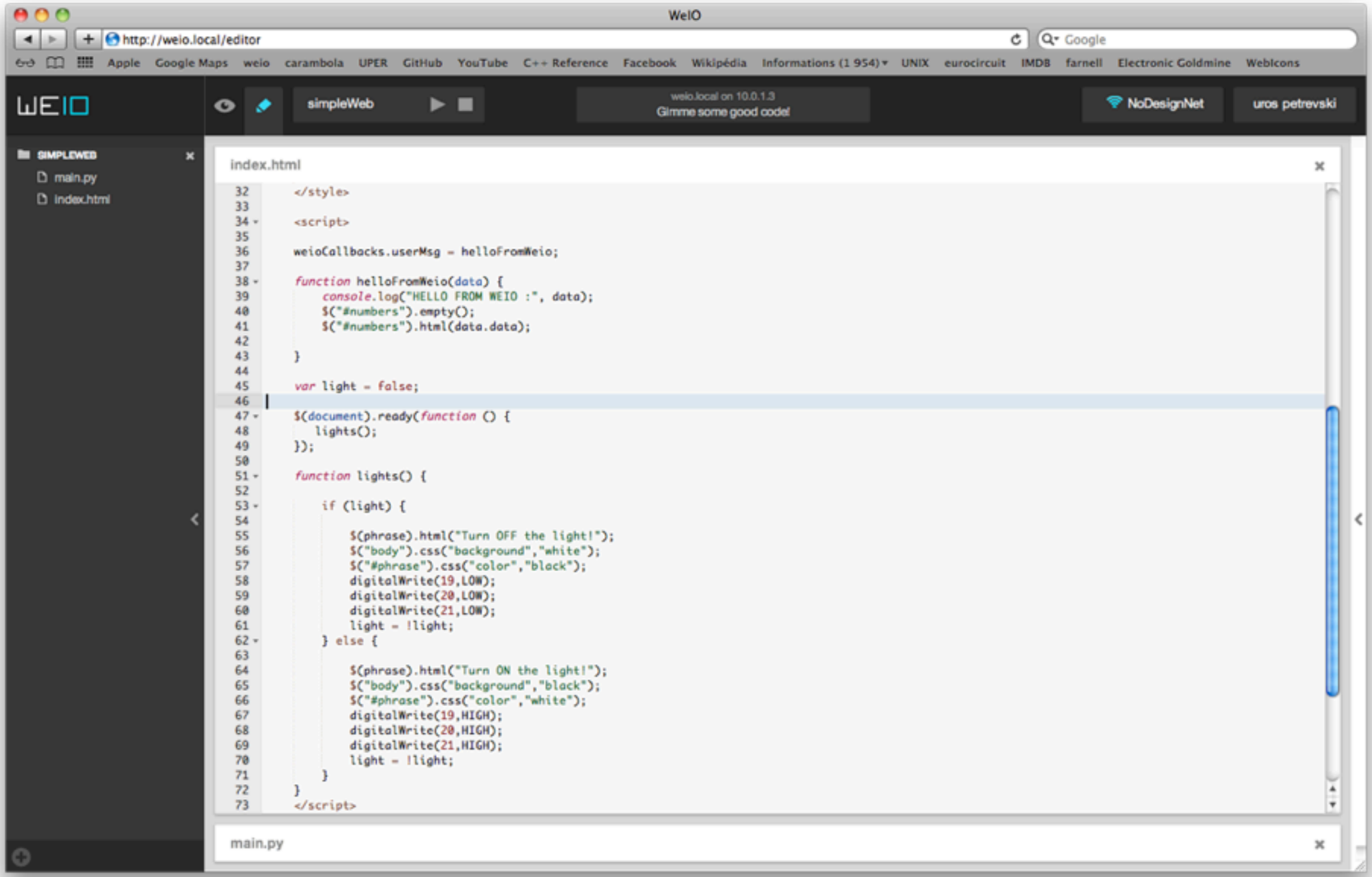


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WeIO

http://weio.local/editor

Google

Apple Google Maps weio carambola UPER GitHub YouTube C++ Reference Facebook Wikipédia Informations (1 954) UNIX eurocircuit IMDB farnell Electronic Goldmine WebIcons

WEIO simpleWeb weio.local on 10.0.1.3 Gimme some good code! NoDesignNet uros petrevski

index.html

```
32      </style>
33
34      <script>
35
36      weioCallbacks.userMsg = helloFromWeio;
37
38      function helloFromWeio(data) {
39          console.log("HELLO FROM WEIO :", data);
40          $("#numbers").empty();
41          $("#numbers").html(data.data);
42
43      }
44
45      var light = false;
46
47      $(document).ready(function () {
48         lights();
49      });
50
51      function lights() {
52
53          if (light) {
54
55              $(phrase).html("Turn OFF the light!");
56              $("body").css("background","white");
57              $("#phrase").css("color","black");
58              digitalWrite(19,LOW);
59              digitalWrite(20,LOW);
60              digitalWrite(21,LOW);
61              light = !light;
62          } else {
63
64              $(phrase).html("Turn ON the light!");
65              $("body").css("background","black");
66              $("#phrase").css("color","white");
67              digitalWrite(19,HIGH);
68              digitalWrite(20,HIGH);
69              digitalWrite(21,HIGH);
70              light = !light;
71          }
72      }
73      </script>
```

main.py

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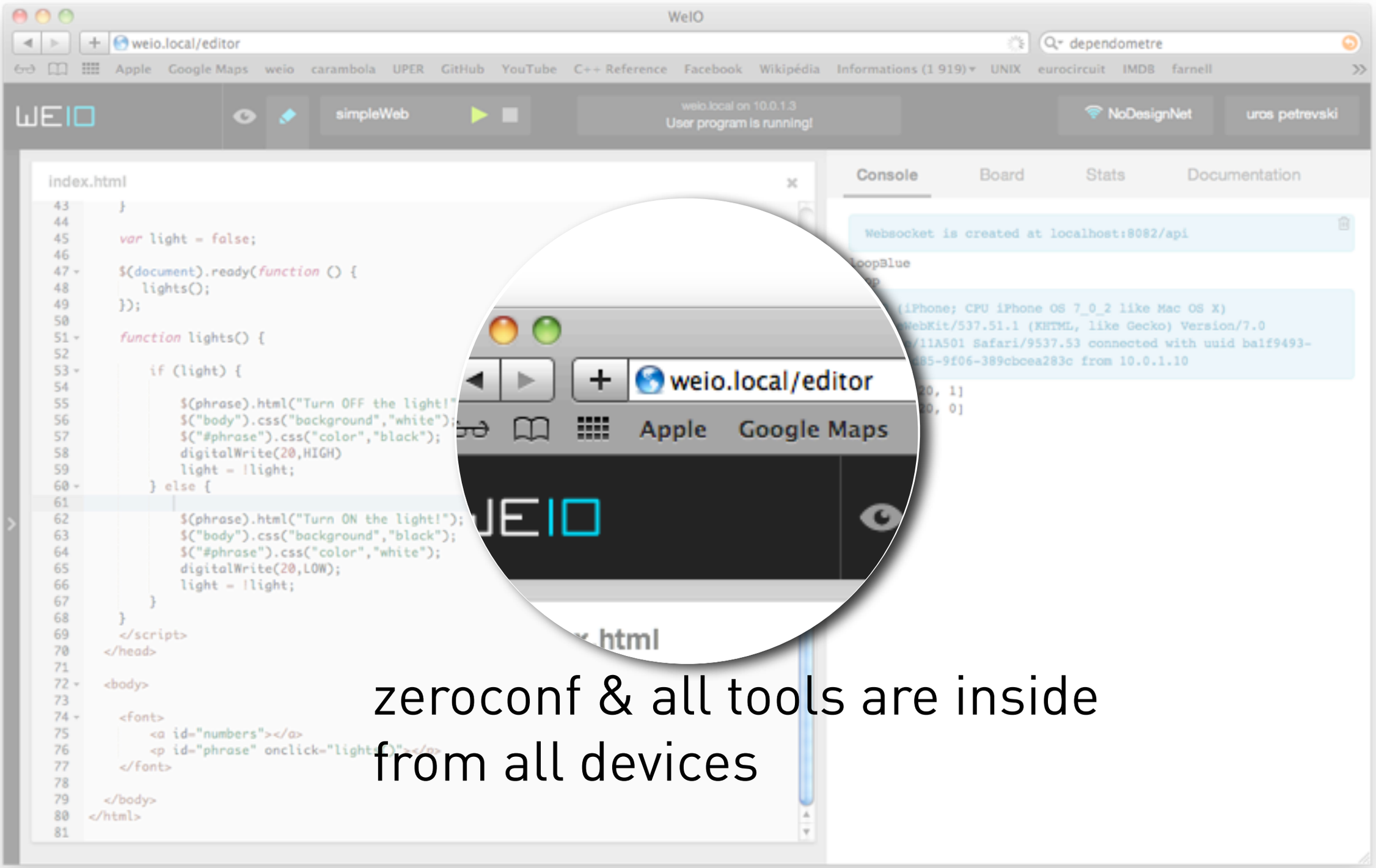


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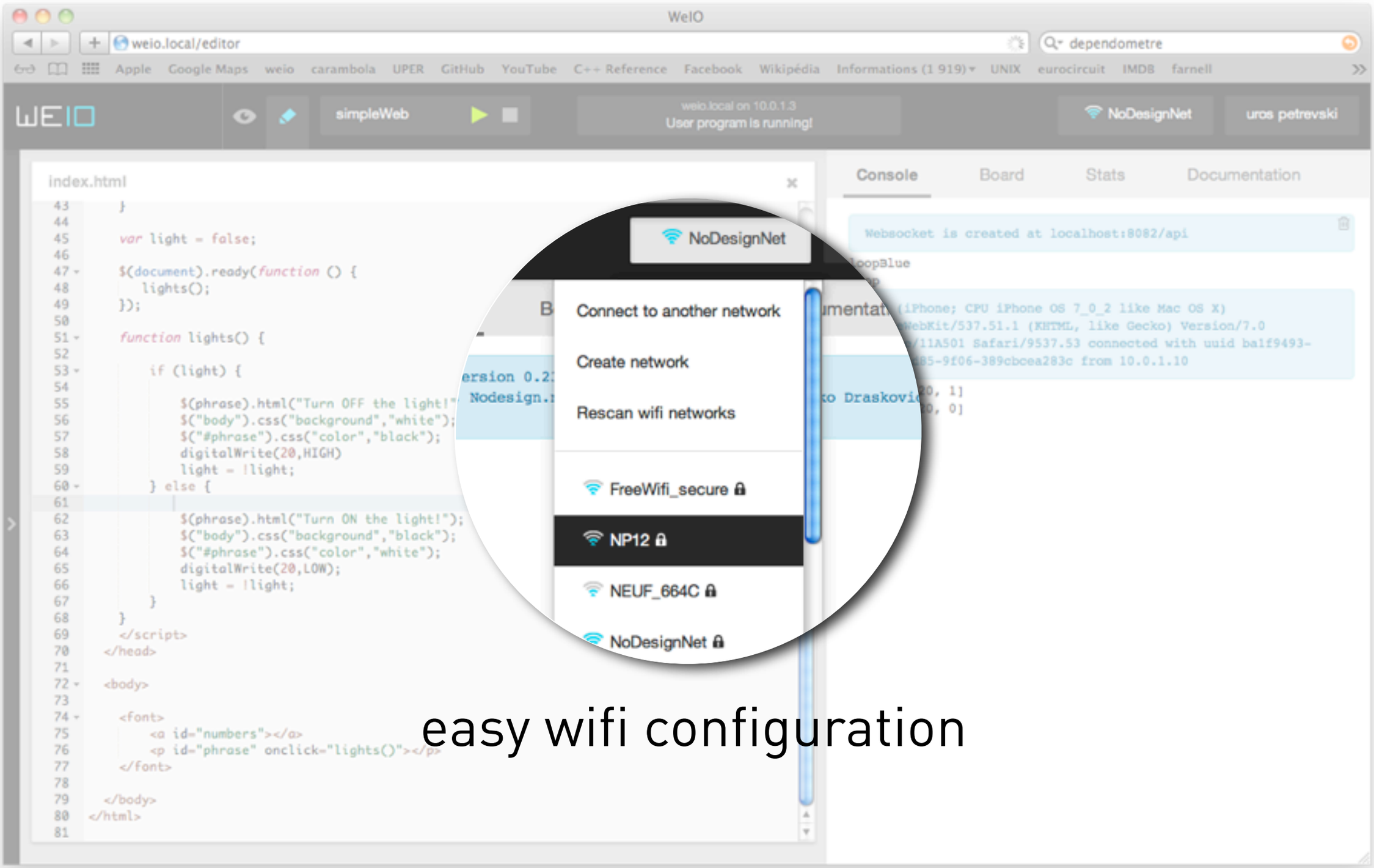


easy wifi configuration

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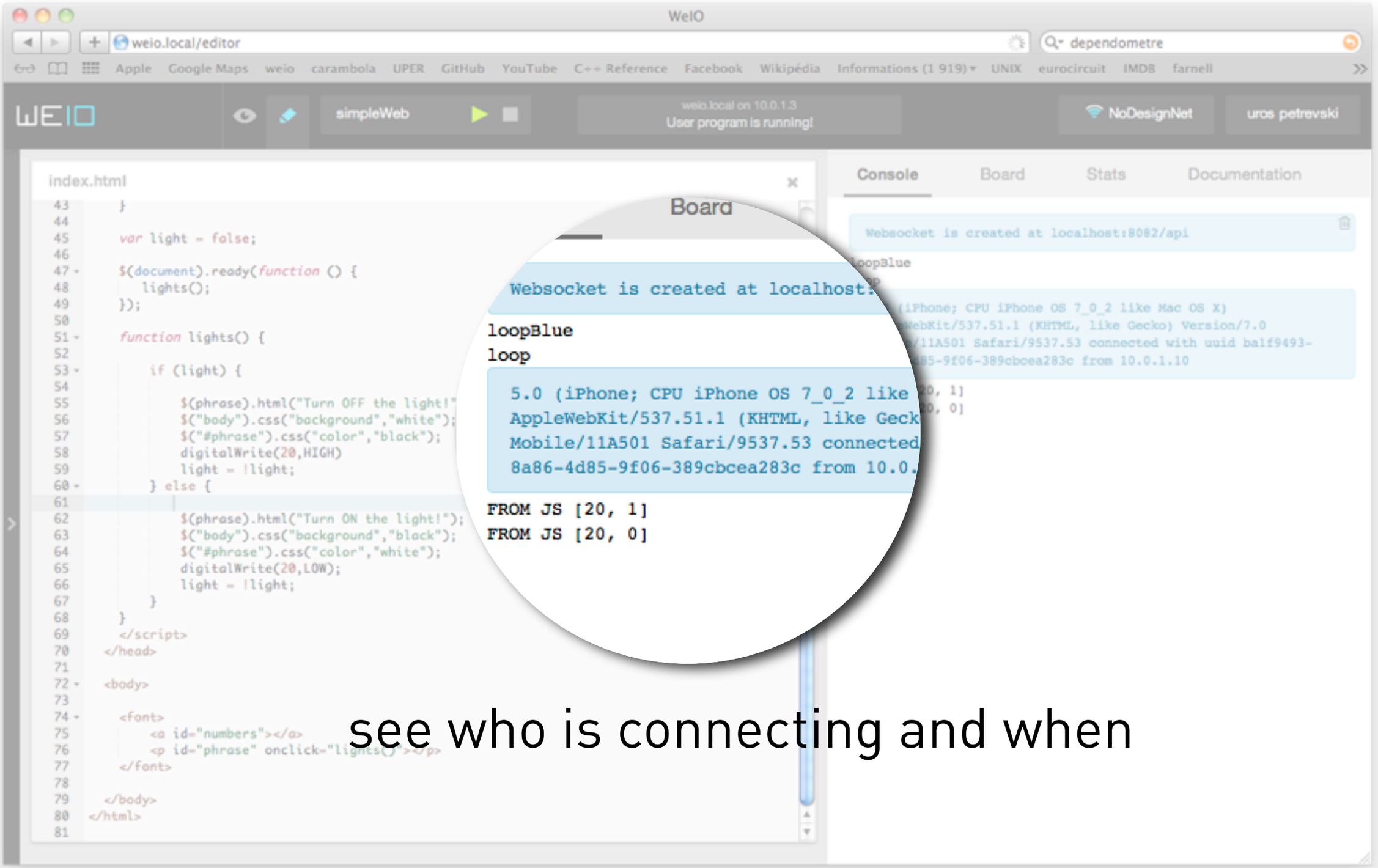
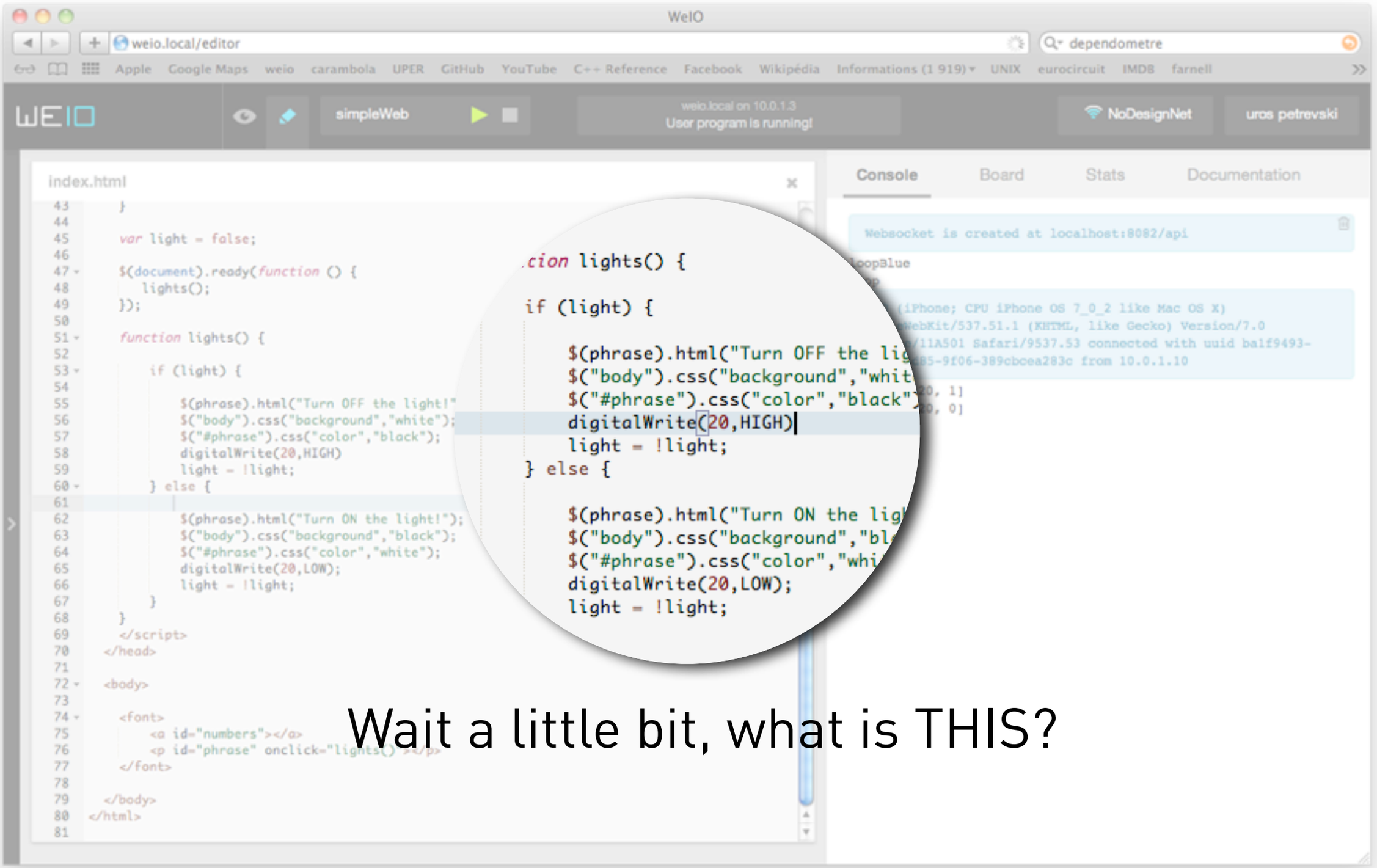



see who is connecting and when




Wait a little bit, what is THIS?

```
if (light) {

    $(phrase).html("Turn OFF the light!");
    $("body").css("background","white");
    $("#phrase").css("color","black");
    digitalWrite(19,LOW);
    digitalWrite(20,LOW);
    digitalWrite(21,LOW);
    light = !light;
} else {

    $(phrase).html("Turn ON the light!");
    $("body").css("background","black");
    $("#phrase").css("color","white");
    digitalWrite(19,HIGH);
    digitalWrite(20,HIGH);
    digitalWrite(21,HIGH);
    light = !light;
}
```

We are driving electronics directly from HTML/Javascript

and from any device!

and of course with Arduino compatible API

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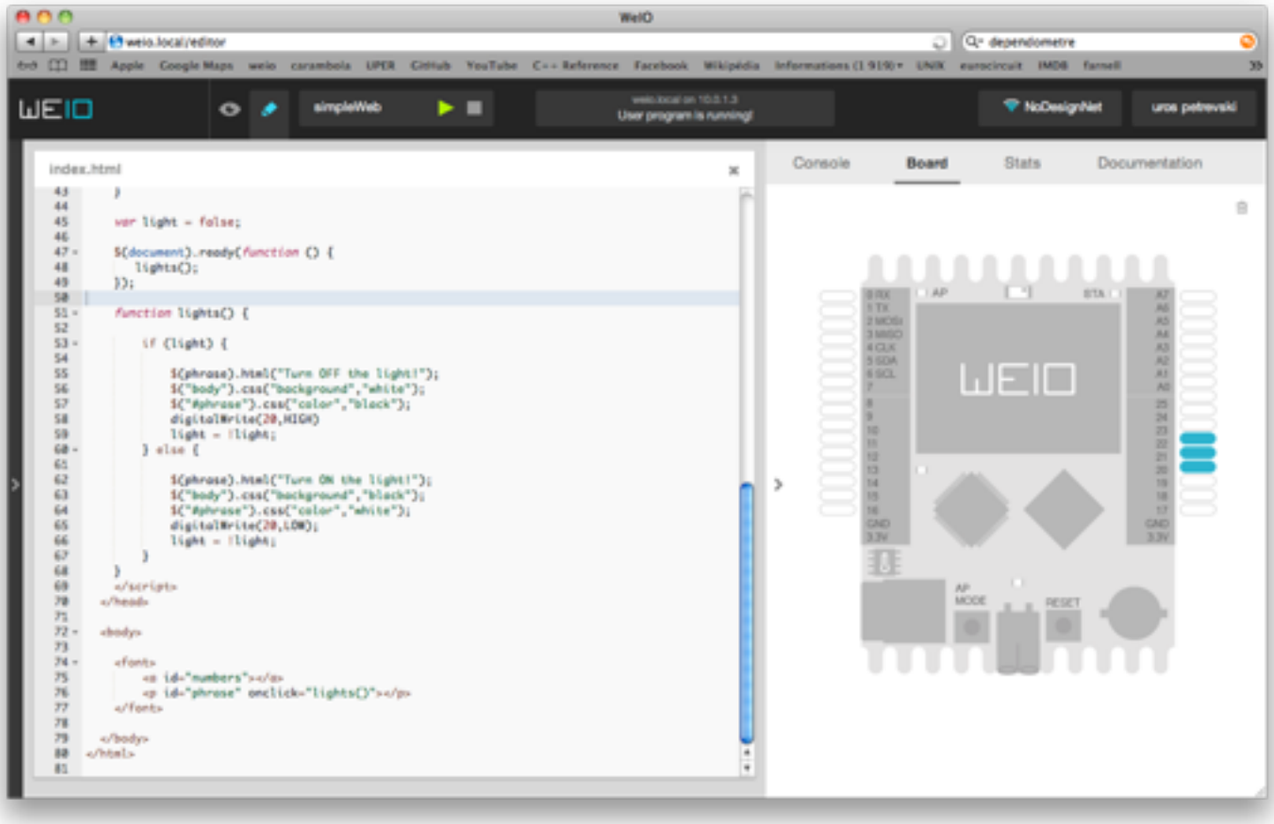
And you will be ready to
program really rich web apps.

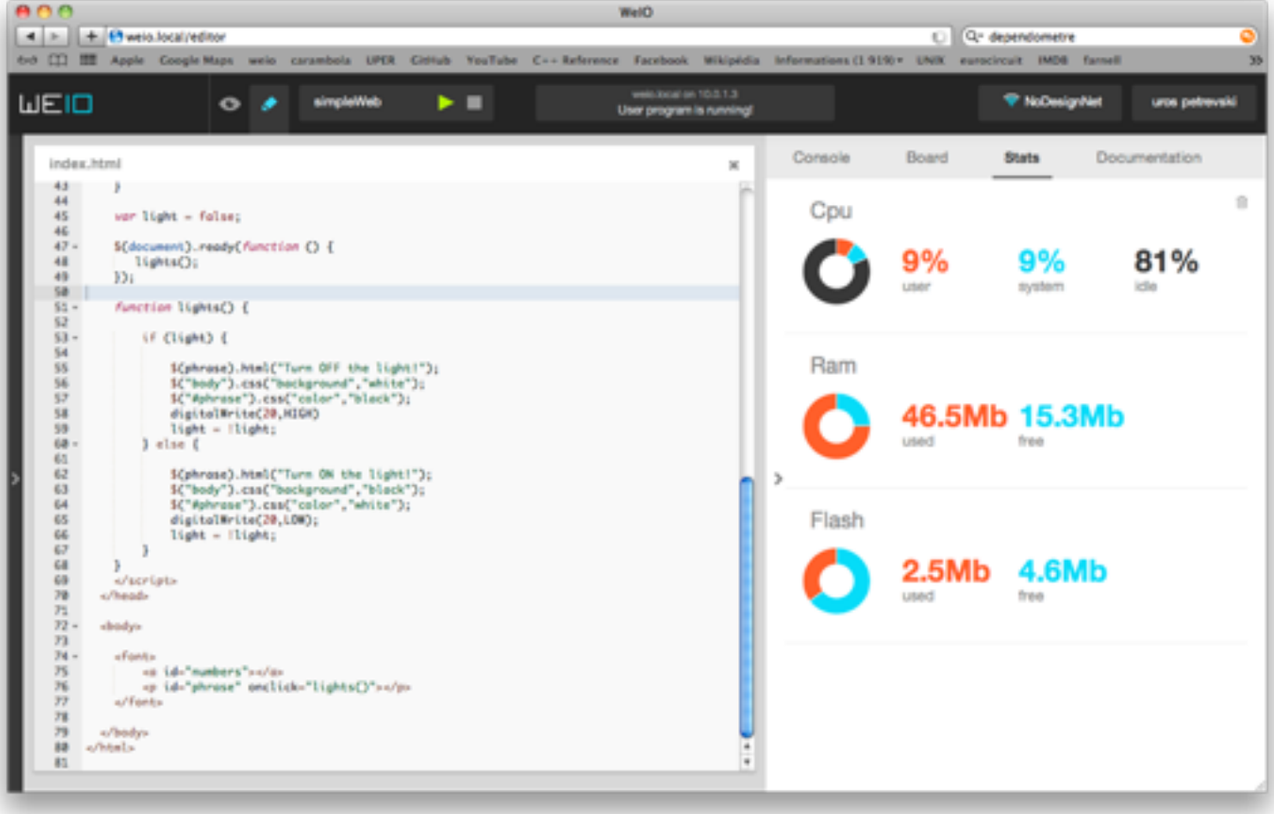
WeIO natively supports
jQuery, Bootstrap and ChartJS

but you can add whatever you
want as library

but that's not all...



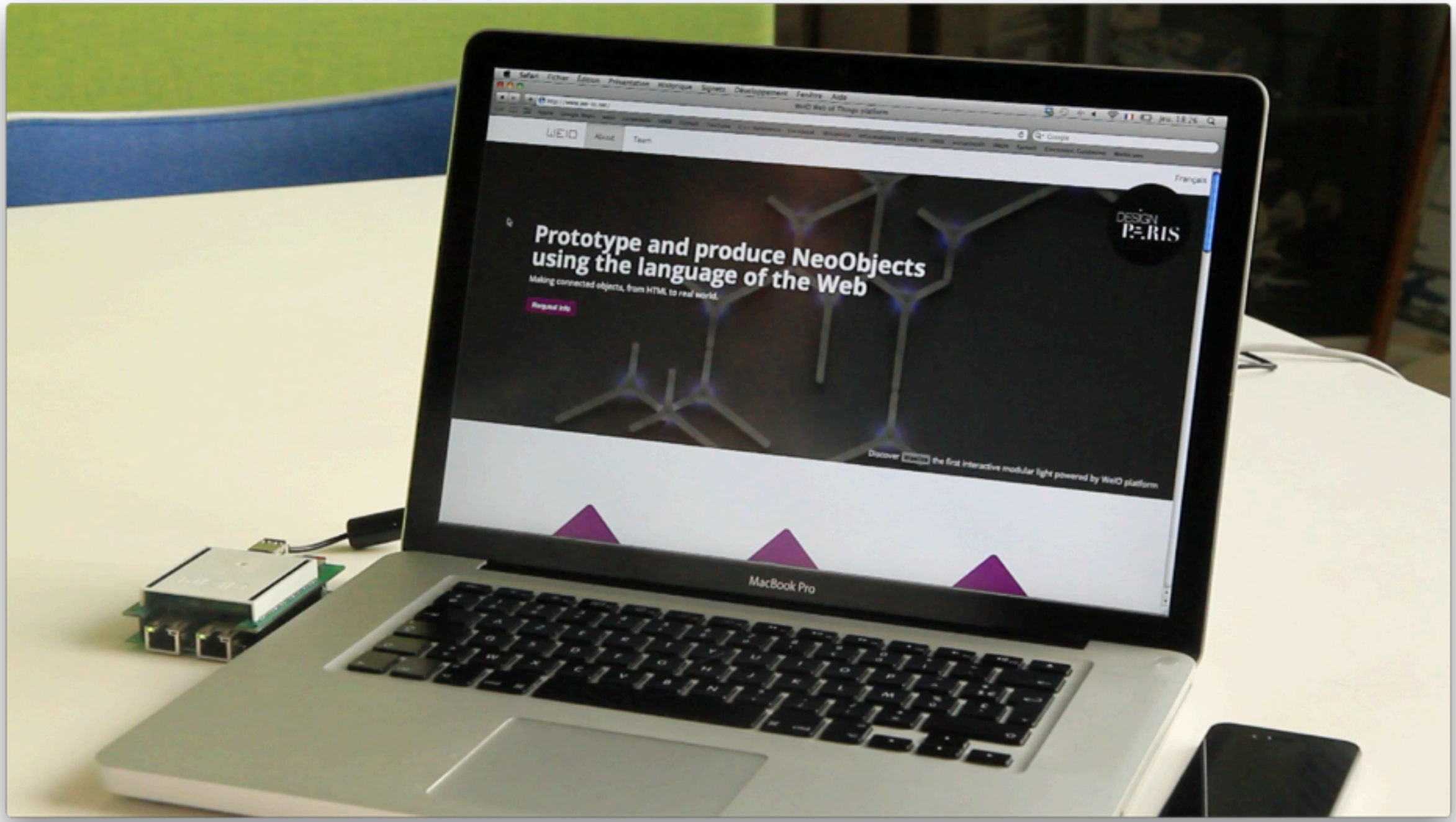

Visualize in realtime what are you doing with inputs and outputs at each moment




Visualize in realtime what is happening in OS and your program

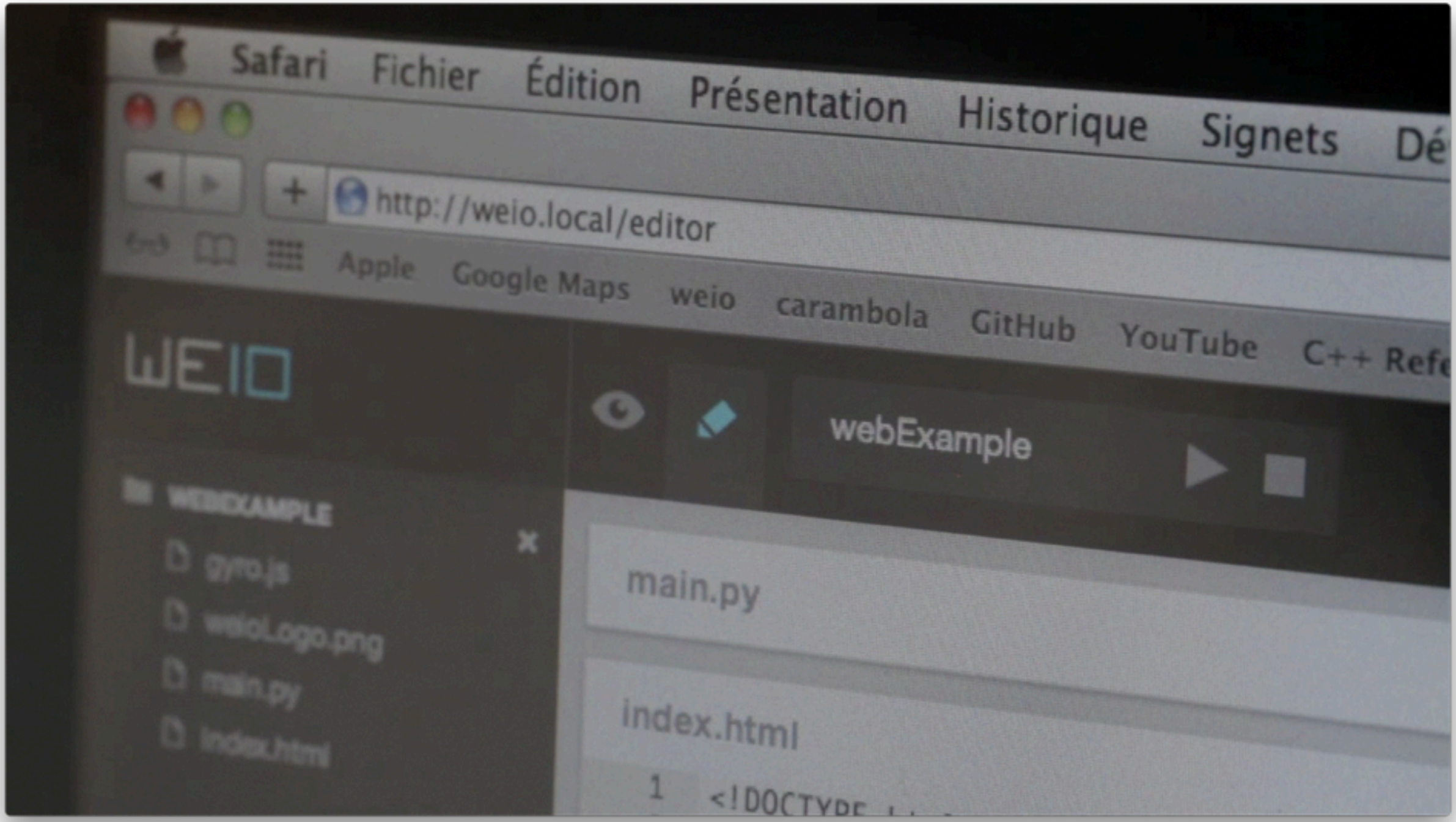
# What WYSIWYG is to press, WeIO is to programming connected objects

# WeIO “Hello world!“ WebApp




http://vimeo.com/76410801

# You said connected objects?




http://vimeo.com/75567901

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# What if I want something that is standalone?

Well, do it in Python!

WeIO

http://weio.local/editor

Apple Google Maps weio carambola UPER GitHub YouTube C++ Reference Facebook Wikipédia Informations (1 954) UNIX eurocircuit IMDB farnell

WEIO

pwmTest

weio.local on 10.0.1.3
User program is running!

main.py

```
1  from weioLib.weioGpio import WeioGpio
2  from weioLib.weioUserApi import attach, shared
3  import time
4
5  def setup() :
6      attach.process(loop)
7
8  def loop() :
9      weio = shared.gpio
10     while True:
11         print "fade in"
12         for i in xrange(0,255,5):
13             weio.pwmWrite(19,i)
14             weio.pwmWrite(20,i)
15             weio.pwmWrite(21,i)
16             time.sleep(0.03)
17         print "fade out"
18         for i in xrange(0,255,5):
19             weio.pwmWrite(19,255-i)
20             weio.pwmWrite(20,255-i)
21             weio.pwmWrite(21,255-i)
22             time.sleep(0.03)
```

Console Board

```
Websocket is created at loca
loop
fade in
fade out
fade in
fade out
fade in
fade out
fade in
fade out
fade in
fade out
fade in
fade out
fade in
```

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# Future of programing microcontrolers is in interpreted languages

No more
compiling,
crosscompiling,
lost months of
setting up tools...

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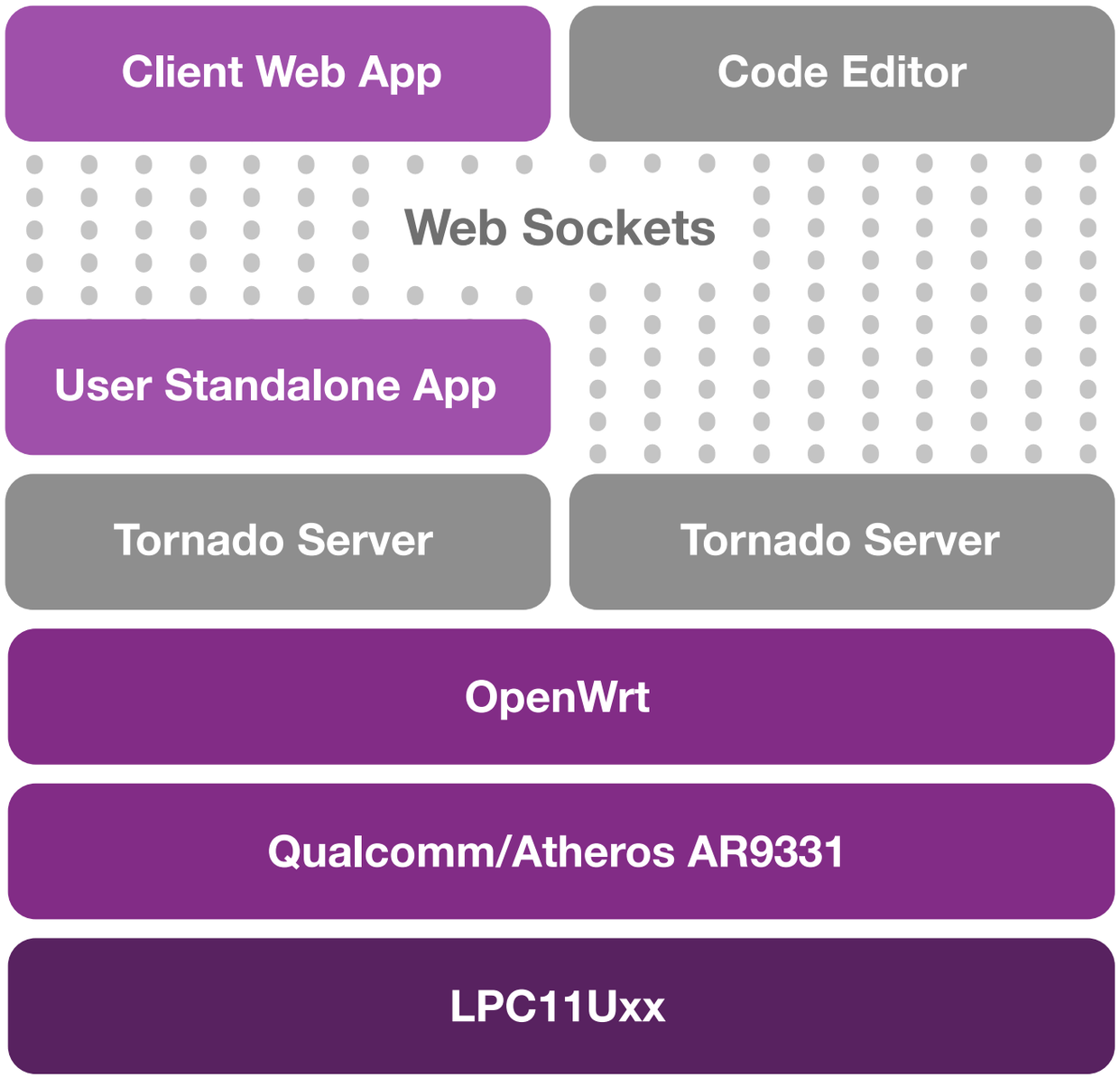
# WeIO is NOT a toy!


Client Web App
Code Editor
Web Sockets
User Standalone App
Tornado Server
Tornado Server
OpenWrt
Qualcomm/Atheros AR9331
LPC11Uxx

Create,
innovate,
learn!

WE|O

is Open source and
Open hardware
project