



# Workshop introduction

Antonio Liñán  
Colina



# Alumni



The Abdus Salam  
**International Centre  
for Theoretical Physics**



**Workshop on Scientific Applications  
for the Internet of Things (IoT)**  
**16-27 March 2015    Miramare - Trieste, Italy**



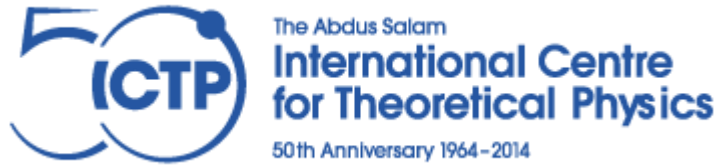


# INTERNET DE LAS cosas (IoT)

Escuela de Verano-Invierno 2016







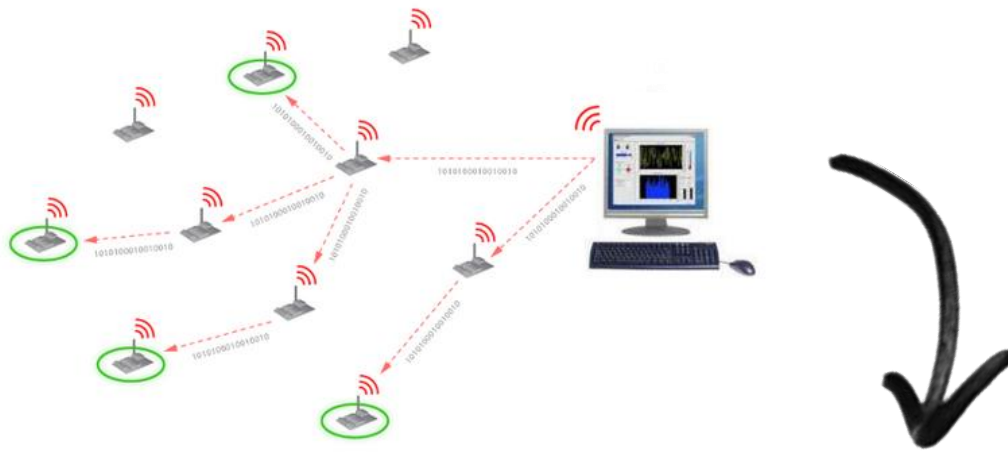
Workshop on New Frontiers in Internet of Things  
ICTP, Trieste - Italy  
March 7-18, 2016



# Workshop objective







WSN: isolated silos

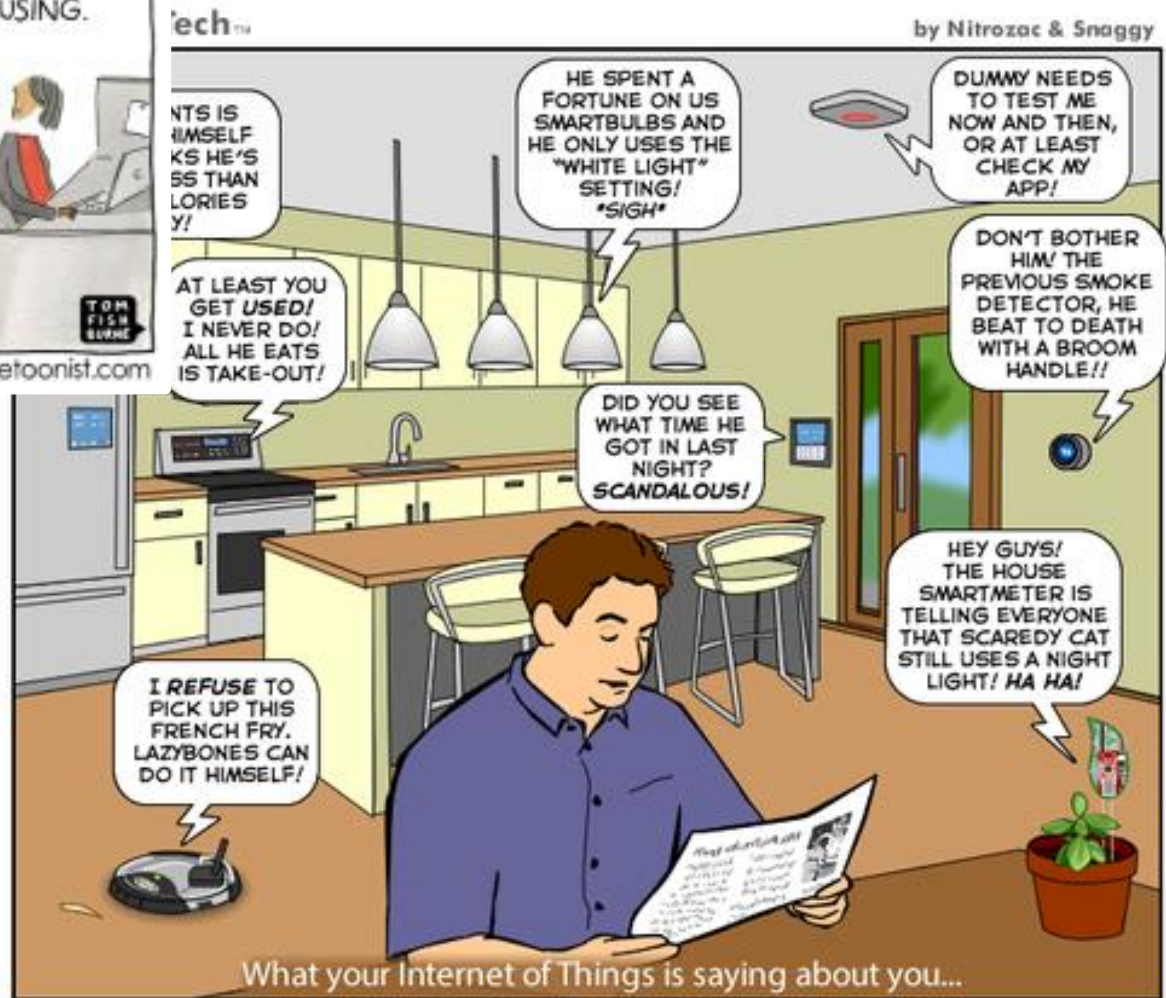


M2M: connected silos



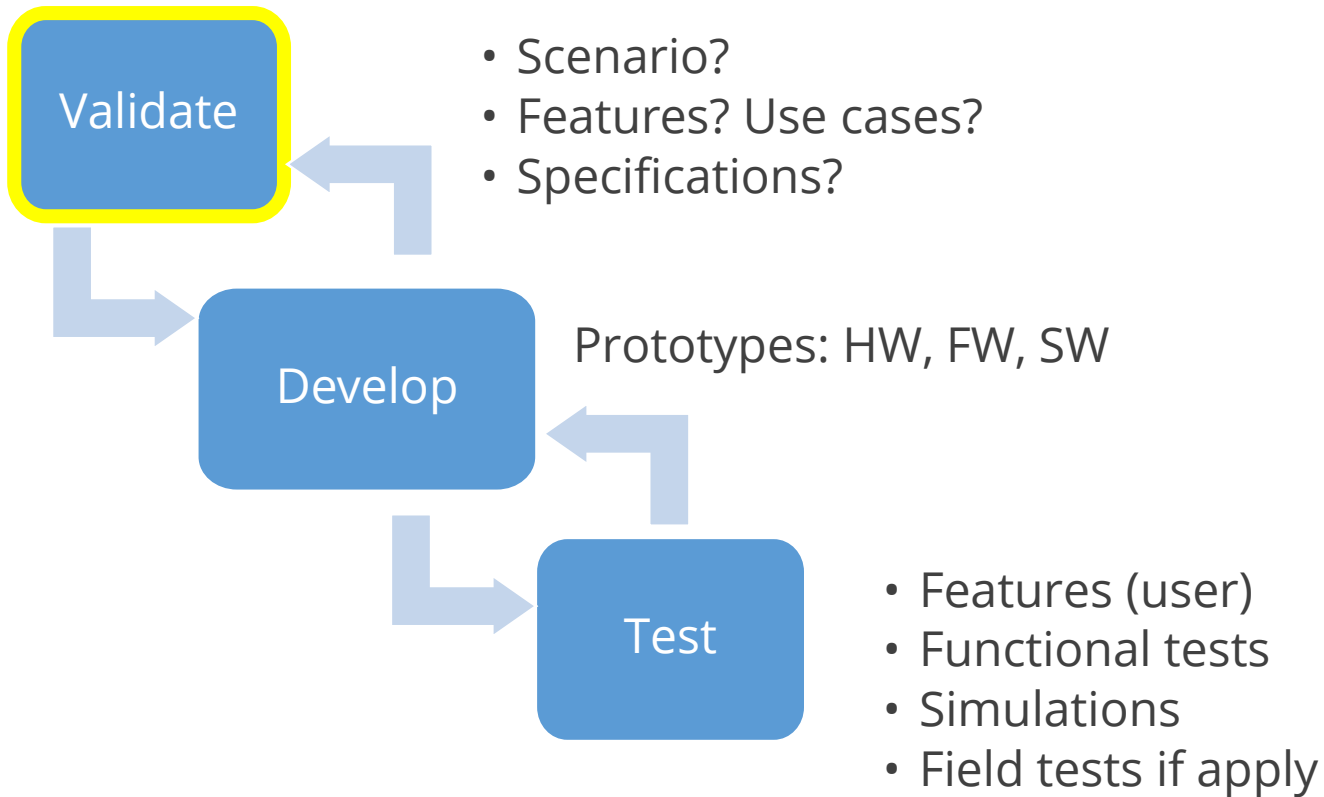
IoT: people and objects connected





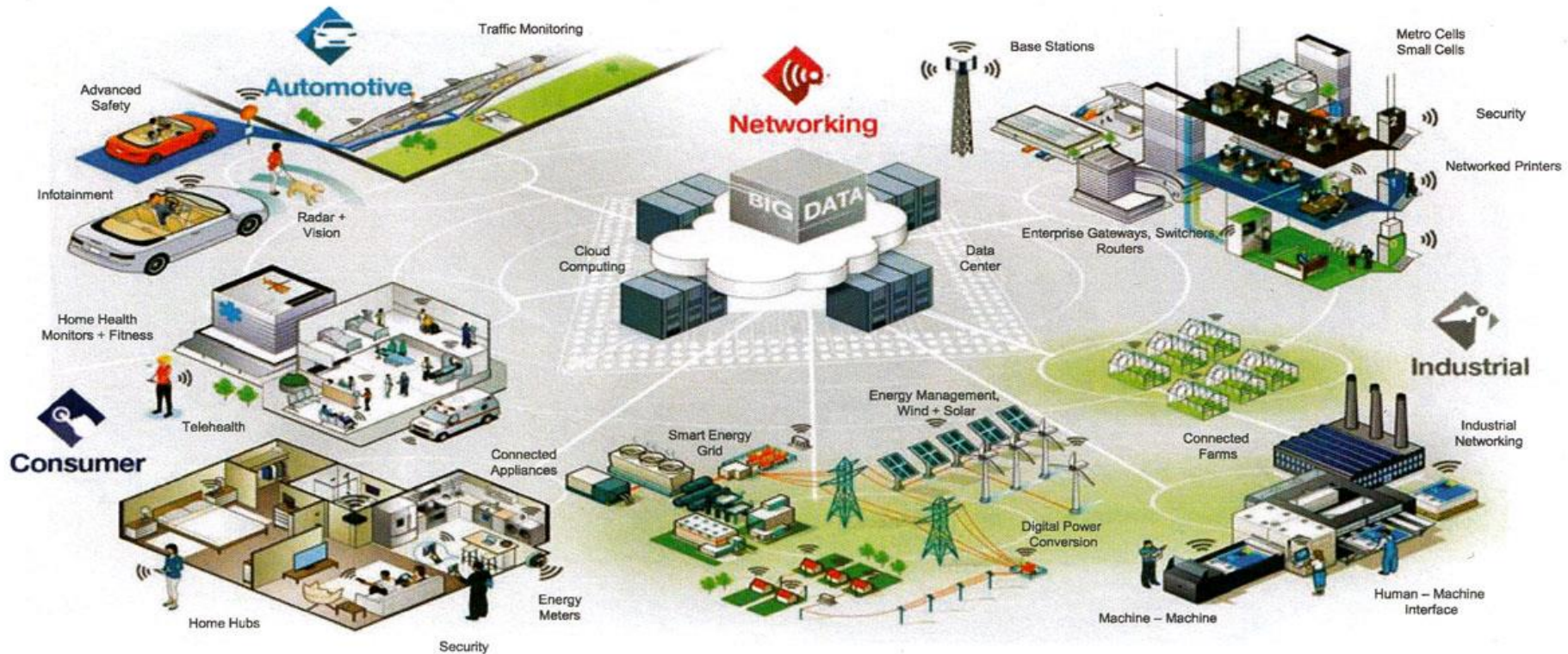
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joyoftech.com





# The Internet of Things



<http://www.theregister.co.uk/>



- What problem do we want to solve?
- How that problem affects people?
- How people are going to use this solution?



**VS**



- Solutions based on human necessities, not on technologies
- Avoid isolated silos!
- Avoid unnecessary features, focus on your MVP!
- Ask yourself: who is the user? How it will use our solution?
- What is our value proposition?



**1**

Find a human  
problems to  
solve



**2**

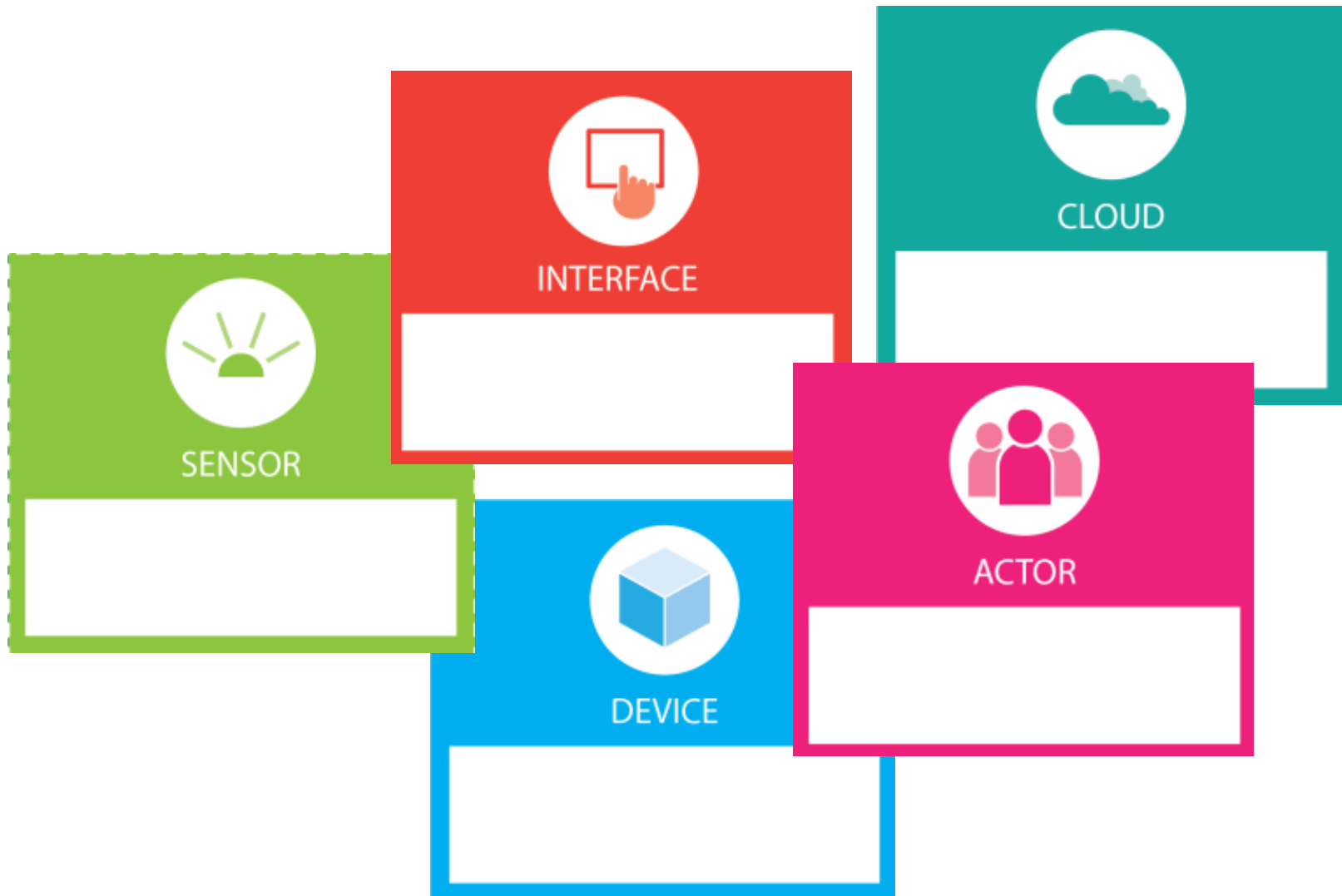
Create a solution  
that adds value to  
the user

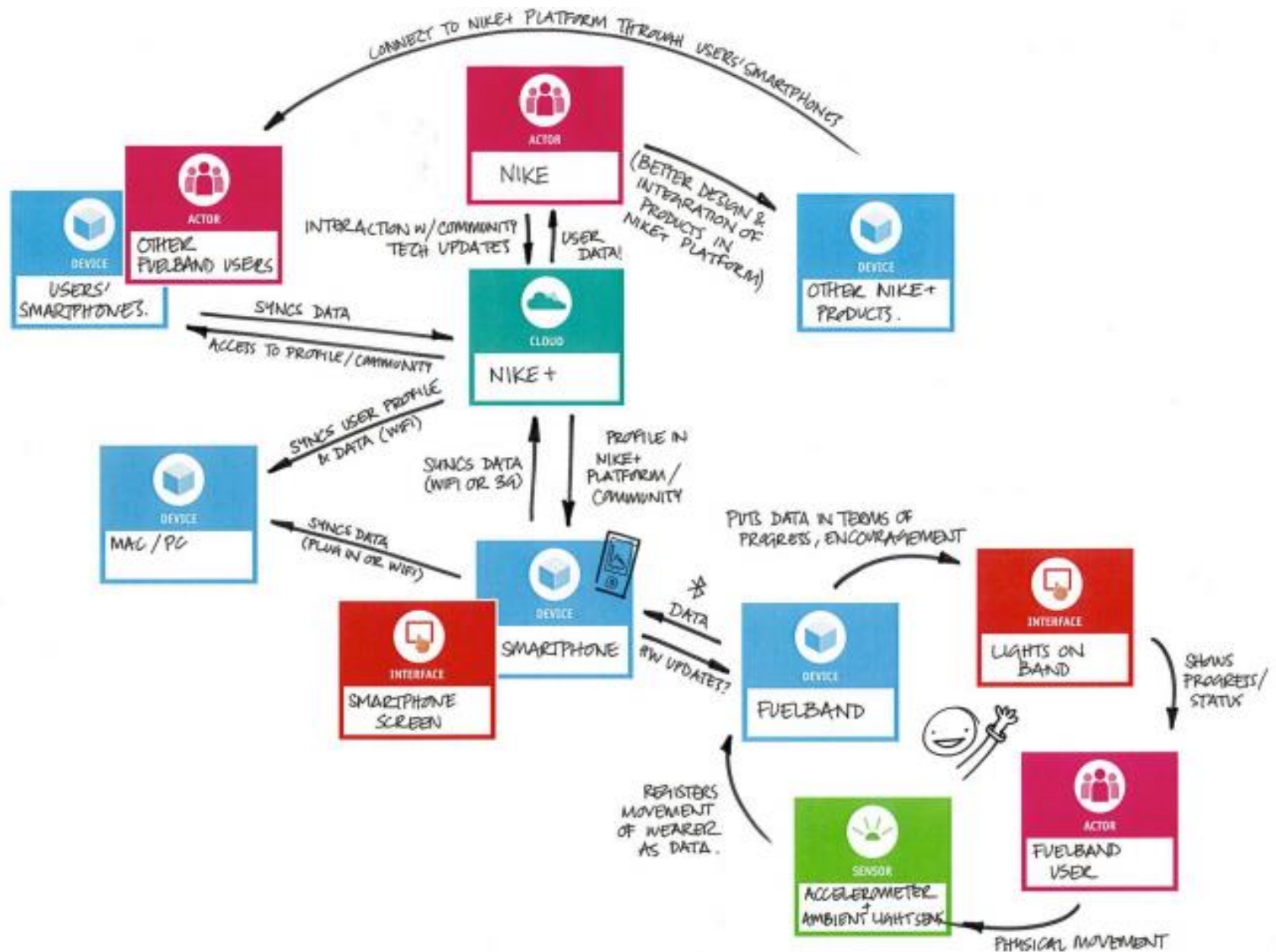


**3**

Create a canvas  
of our solution,  
showing  
interactions  
between actors  
and technologies








# Workshop material


(Open Source)





 **alignan / IPv6-WSN-book**  
forked from marcozennaro/IPv6-WSN-book

 Unwatch ▾ 8

 Star 7

 Fork 13

 Code

 Pull requests 0

 Wiki


 Pulse

 Graphs

 Settings

IoT in 5 days workshop [http://wireless.ictp.it/school\\_2015/](http://wireless.ictp.it/school_2015/) — Edit

 128 commits

 3 branches

 2 releases

Branch: master ▾

**New pull request**

New file


Upload files

Find file

HTTPS ▾

<https://github.com/alignan/IPv6-WSN-book>

This branch is 2 commits ahead of marcozennaro:master.

 **alignan** Merge pull request #1 from MarconiLab/patch-1 ...



## INTERNET DE LAS COSAS

Antonio Liñán Colina, Alvaro Vives, Antoine Bagula, Marco Zennaro, Ermanno Pietrosemoli

Traducción: Lourdes González Valera

<http://www.eslared.org/ve/index.php/libros>



<https://github.com/alignan/IPv6-WSN-book>  
<https://github.com/marcozennaro/IPv6-WSN-book>

alignan / **contiki**  
forked from contiki-os/contiki

Unwatch 7 Star 8 Fork 1,501

Code Pull requests 0 Wiki Pulse Graphs Settings

Branch: **iot-workshop** contiki / examples / zolertia / tutorial /

Create new file Upload files Find file History

This branch is 4 commits ahead, 46 commits behind contiki-os:master. Pull request Compare

IoT workshop VM Typo fixed Latest commit 1d456b1 3 days ago

..

01-basics	Imported Zolertia tutorial for the Z1 mote and Zoul-based platforms	13 days ago
02-ipv6	Fixed minor bugs	4 days ago
03-coap	README.md	13 days ago
04-mqtt		3 days ago
99-apps		13 days ago
README.md		13 days ago
flash-z1		13 days ago
flash-zoul.py		13 days ago
motelist		13 days ago

**Zolertia tutorial**

The following lessons will walk you through Contiki and how to implement Internet of Things applications on Zolertia devices.

The lessons are:

- 01-basics: Contiki basics (timers, GPIO, LEDs).
- 02-ipv6: Wireless networking, RF basics and IPv6/6LoWPAN implementation (UDP/TCP)
- 03-coap: Example on how to implement a CoAP server
- 04-mqtt: Example on how to implement a MQTT client

Additionally there are ready to test applications in the 99-apps folder.

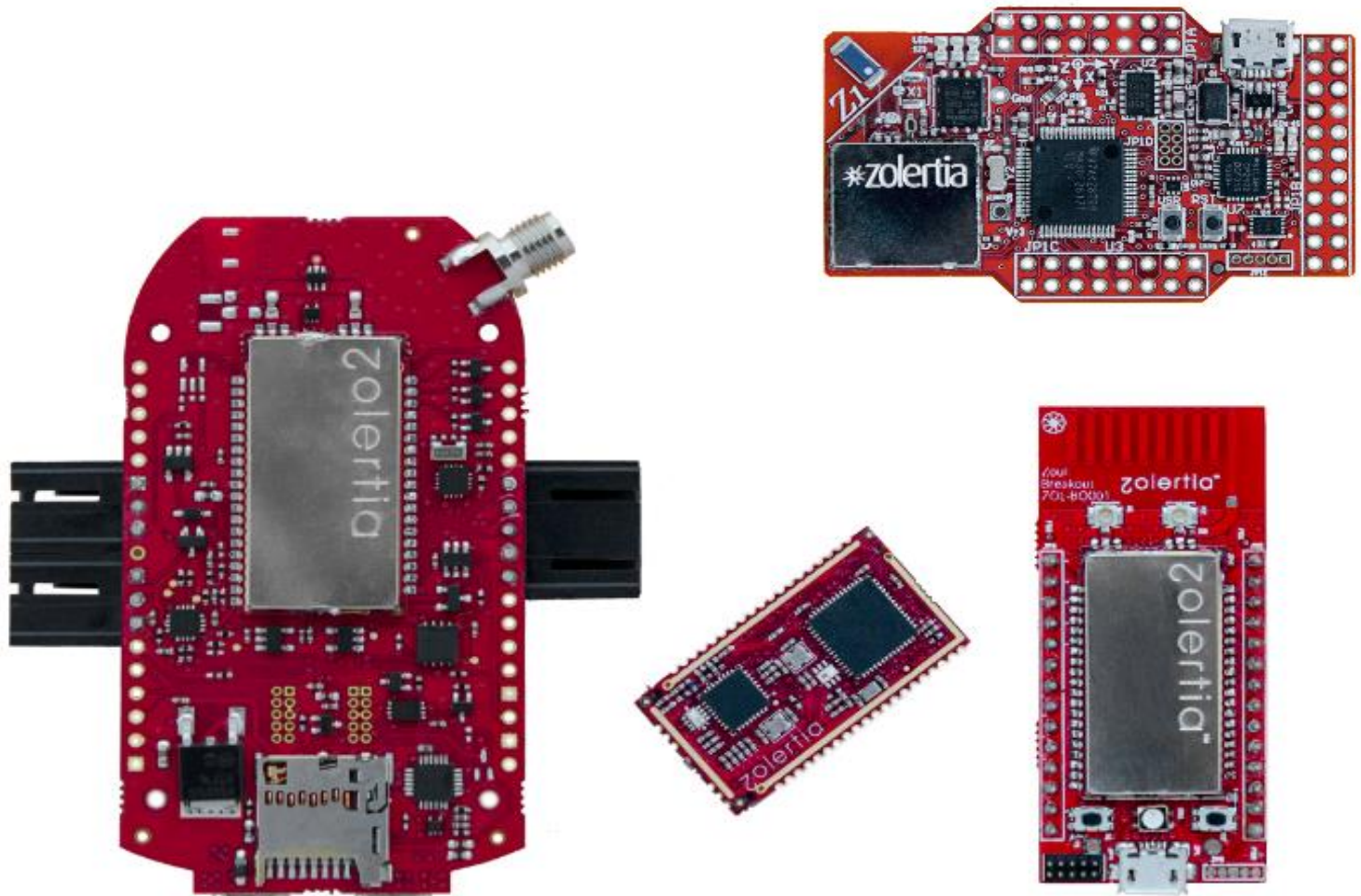
For additional resources please visit:

- Zolertia Wiki
- Zolertia website
- Zolertia store

<https://github.com/alignan/contiki/tree/iot-workshop>



# IoT Hardware: Zolertia



# Sensors and actuators

(Seedstudio, Sparfun, Adafruit, Phidget...)






# Raspberry Pi

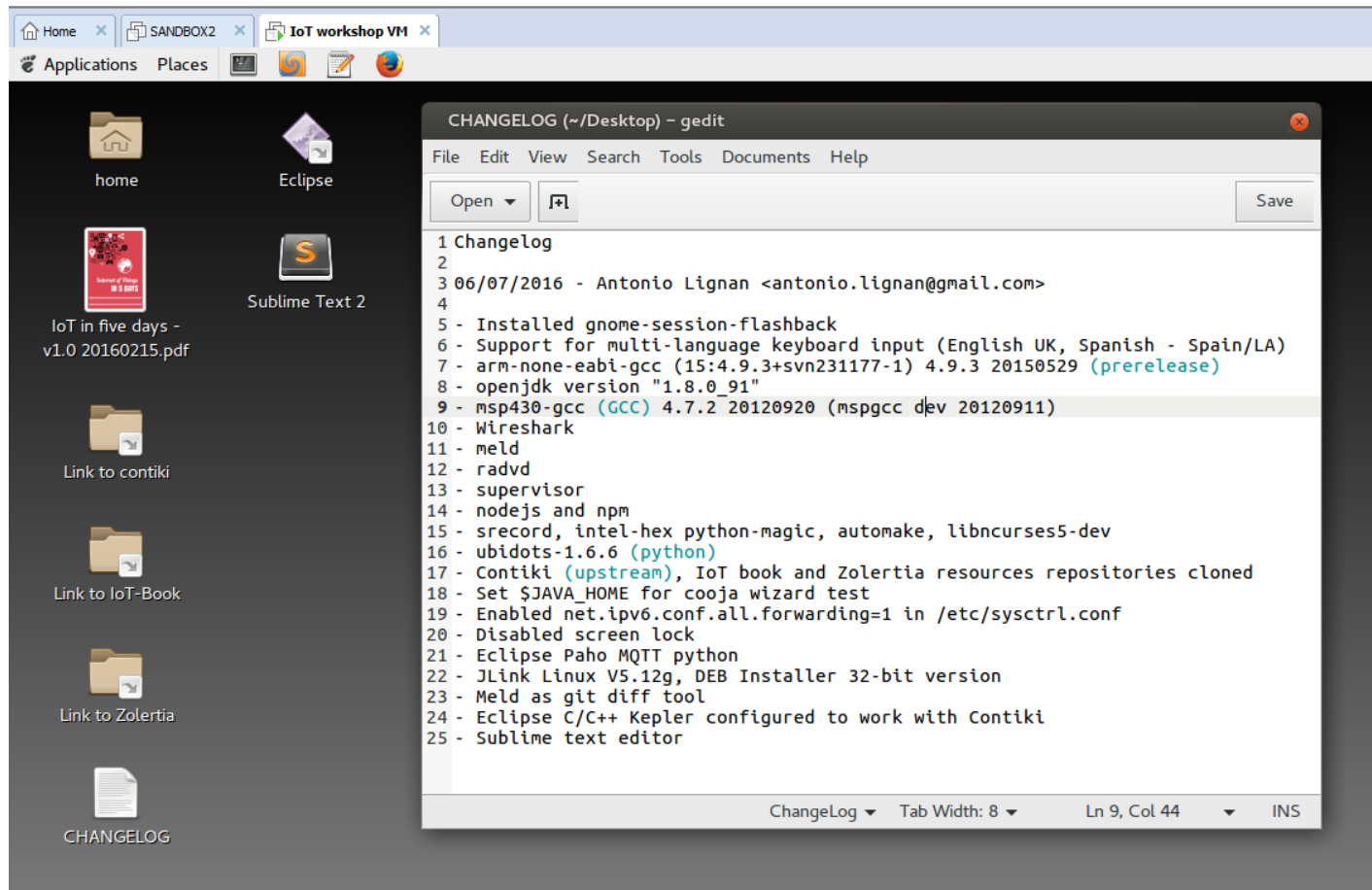
(Optionally!)



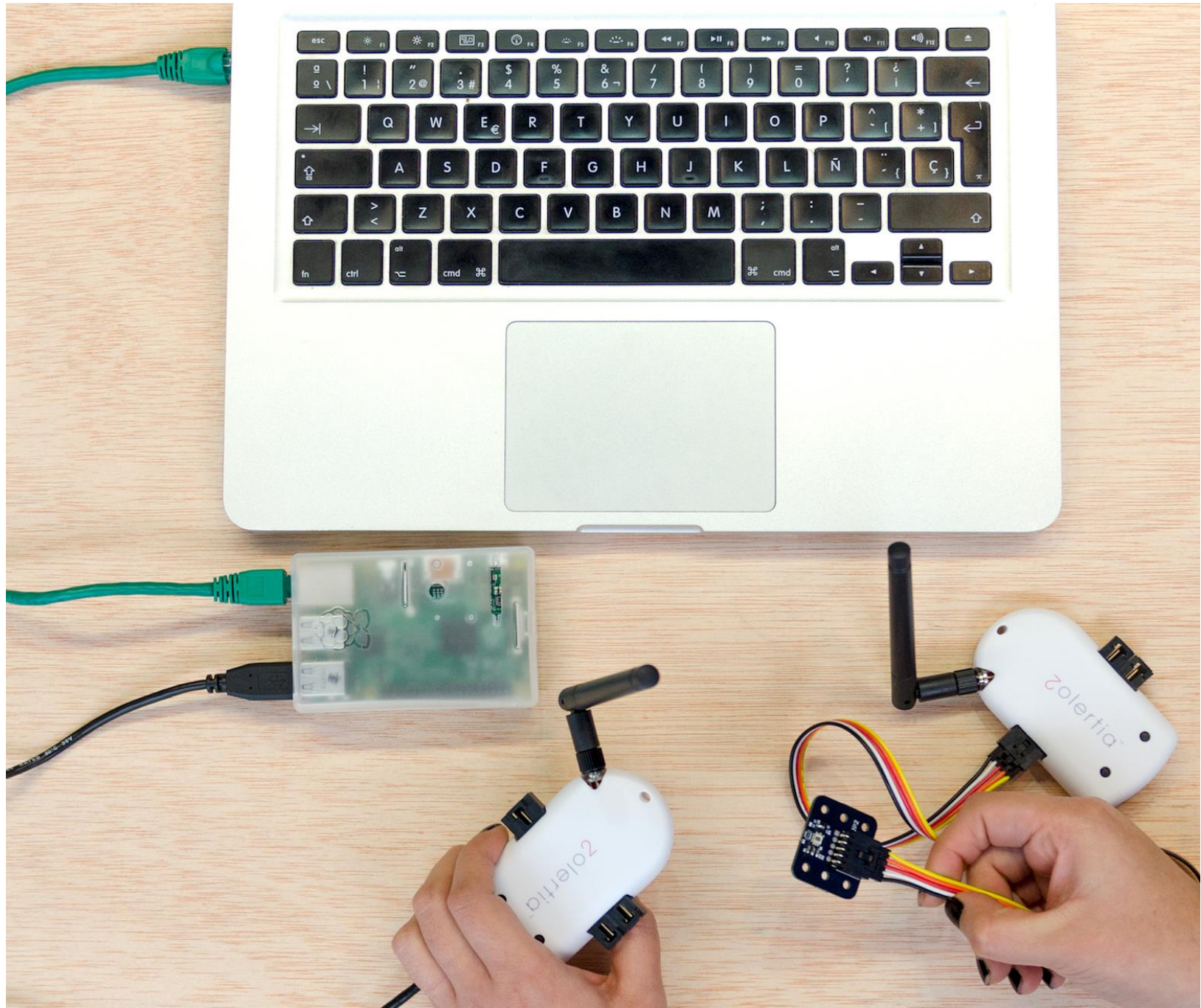
	<b>NEW! Raspberry Pi 2</b>
<b>Processor Chipset</b>	Broadcom BCM2836 ARMv7 Quad Core Processor powered Single Board Computer running at 900 MHz
<b>RAM</b>	1GB SDRAM @ 450 MHz
<b>Storage</b>	MicroSD
<b>USB 2.0</b>	4x USB Ports
<b>Power Draw / voltage</b>	1.8A @ 5V
<b>GPIO</b>	40 pin
<b>Ethernet Port</b>	Yes

# "IoT in five days" virtual machine

(VMWare image)



<https://sourceforge.net/projects/zolertia/files/VM/IoT%20Workshop%20VM.7z>



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github.com/alignan



hackster.io/alinan