



Bienvenidos

# Hello

Marco Zennaro, Research Officer, ICTP

Applied Physics → Telecommunications/ICT4D Lab

Focal Point of the ITU Centre of Excellence in IoT and Big Data and Statistics

Visiting Professor at Kobe Institute of Computing in Kobe, Japan

Have been working in WSN/IoT for 15 years



# Hello

Ermanno Pietrosemoli, Researcher, ICTP

Applied Physics → Telecommunications/ICT4D Lab

2017 Internet Hall of Fame

President ESLARED

World Record Longest WiFi link



# Hello

Ronald Criollo, Lecturer-Researcher, ESPOL

Lecturer at Faculty of Electrical and Computer Engineering (FIEC)

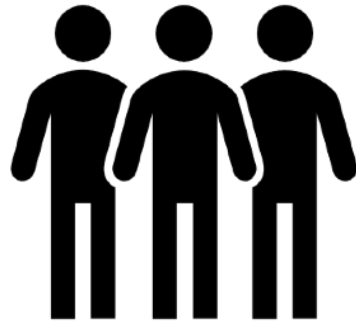
Researcher at Vision and Robotics Center, CVR-FIEC

Instructor at Cisco-ESPOL Academy

Lecturer at Master's Degree in Telecommunications (FIEC)  
and Master's Degree in Information Technology (UCACUE)



You?



## Learning targets

Understanding IoT systems and their fundamental concepts, including the **acquisition**, **transport** and **visualisation** of sensor measurements.

Experimenting with the **software** part, without electronics, of an end-to-end IoT system based on IoT platforms.

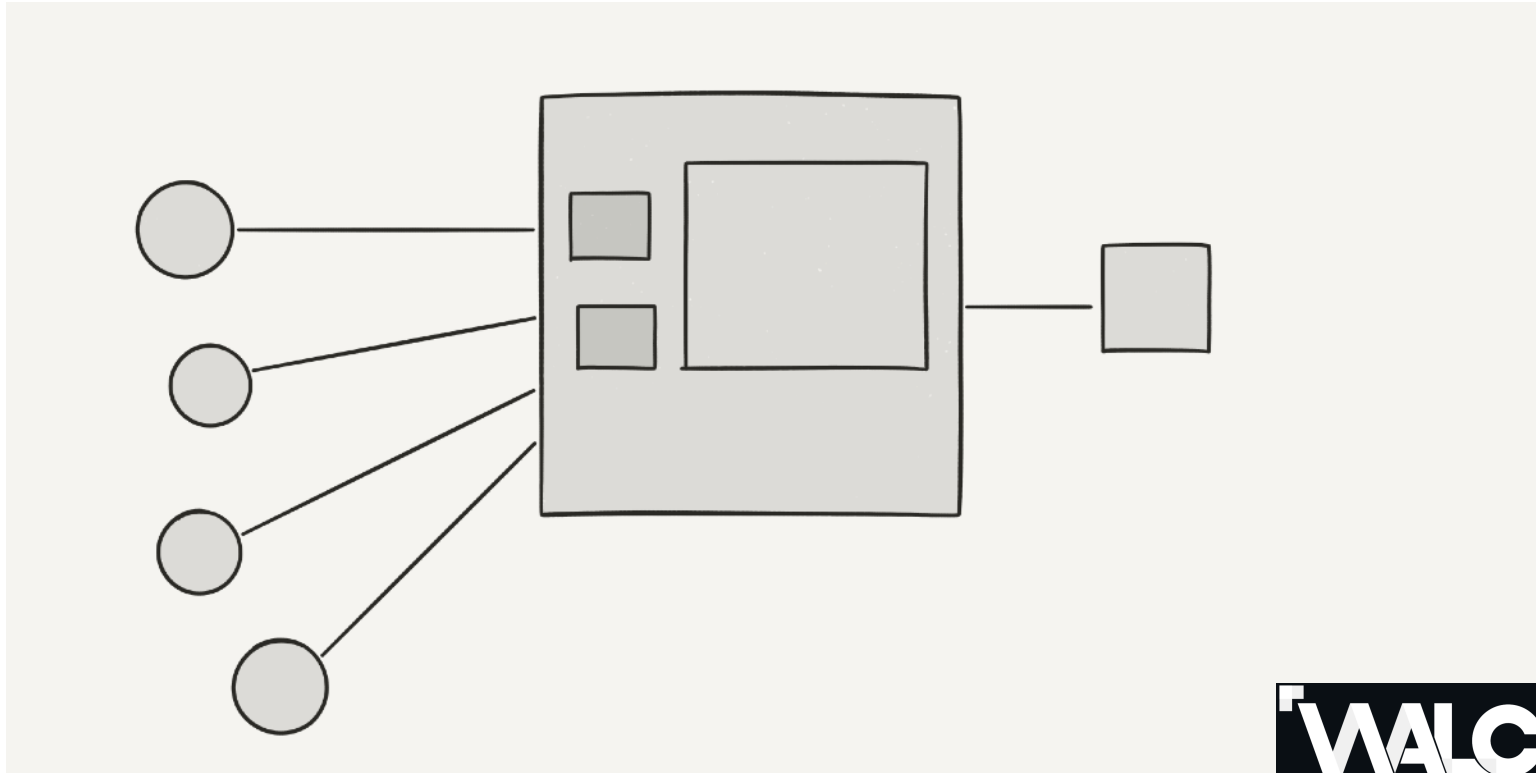
# High level view

**Sensors**



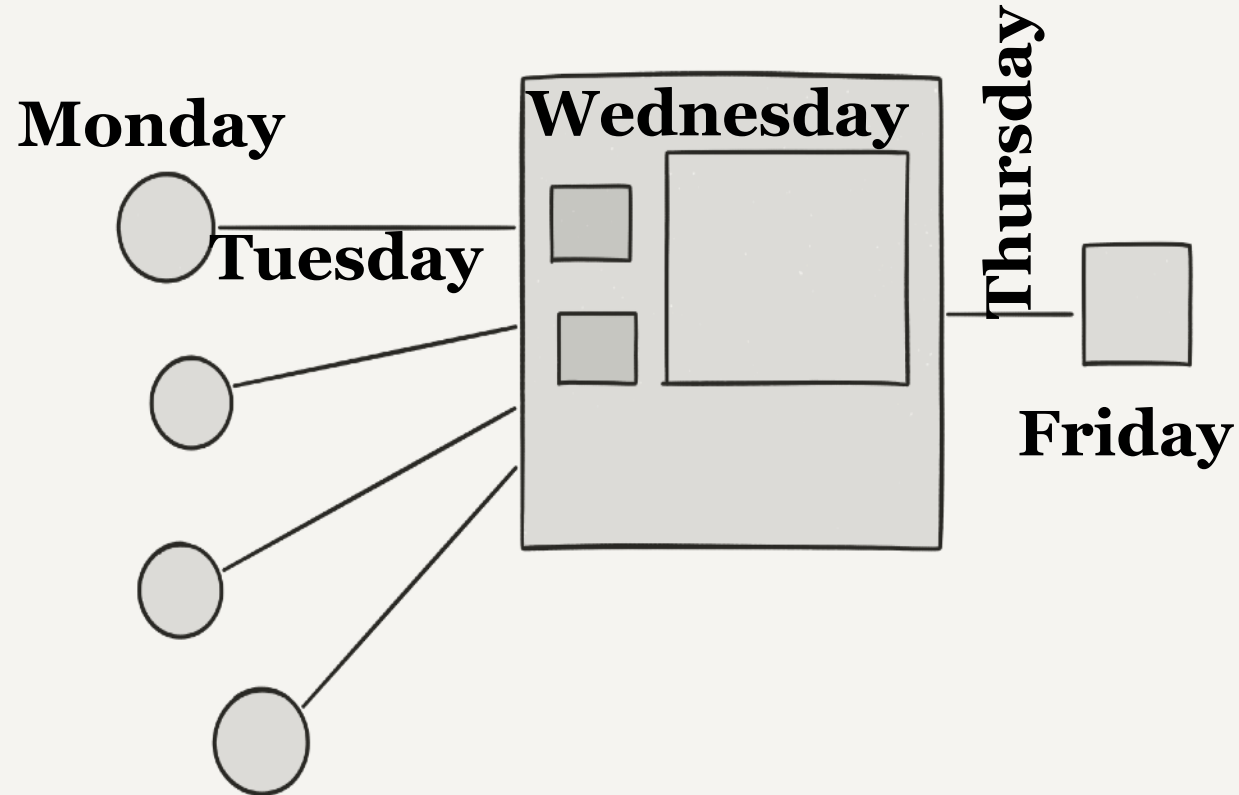
**Information  
Data  
Knowledge**

# CS/EE view





# Our workshop



# Schedule

|               | Monday   | Tuesday   | Wednesday  | Thursday   | Friday  |
|---------------|--|---|--|--|---|
| 08:00 - 09:00 | Registration   | Wireless standards for IoT: WiFi, BLE, SigFox, NB-IoT and LoRa (EP)<br><b>Laboratory (CC-24)</b>        | Radio Link Planning (EP)<br><b>Laboratory (CC-24)</b>  | Energy resources for IoT (EP)<br><b>Laboratory (CC-24)</b>   | IoT Applications (EP)<br><b>Laboratory (CC-24)</b>                                    |
| 09:00 - 10:00 | Opening  |   |  |  |   |
| 10:00 - 10:30 | Coffee Break   |   |  |  |   |
| 10:30 - 11:30 | Introduction to Workshop (RC)<br><b>Laboratory (CC-24)</b>   | Introduction to MQTT (MZ)<br><b>Laboratory (CC-24)</b>  | Official event photo   | <b>Lab. Session #6</b> (MZ, EP, RC):<br>Sending temperature through TTN<br><b>Laboratory (CC-24)</b> | RPiDC: a data center in a RPi (RC)<br><b>Laboratory (CC-24)</b>                       |
| 11:30 - 12:30 | Introduction to IoT (MZ)<br><b>Laboratory (CC-24)</b>  | <b>Lab. Session #2</b> (MZ, EP, RC):<br>MQTT in practice using Mobile Apps<br><b>Laboratory (CC-24)</b> | Introduction to The Things Network TTN (RC)<br><b>Laboratory (CC-24)</b>                             |  |   |
| 12:30 - 14:00 | Lunch  |   |  |  |   |
| 14:00 - 14:45 | Introduction to python & micropython (RC)<br><b>Laboratory (CC-24)</b>   | <b>Lab. Session #3</b> (MZ, EP, RC):<br>MQTT + Iopys + Raspberry Pi<br><b>Laboratory (CC-24)</b>        | <b>Lab. Session #5</b> (MZ, EP, RC):<br>Sending temperature through TTN<br><b>Laboratory (CC-24)</b> | <b>Lab. Session #7</b> (MZ, EP, RC):<br>TTN Mapping<br><b>Laboratory (CC-24)</b>                     | <b>Lab. Session #9</b> (MZ, EP, RC):<br>Installing RPiDC<br><b>Laboratory (CC-24)</b> |
| 14:45 - 15:30 |  |   |  |  |   |
| 15:30 - 16:00 | Coffee Break   |   |  |  |   |
| 16:00 - 17:00 | <b>Lab. Session #1</b> (MZ, EP, RC):<br>pycom intro<br>Hello World<br>reading sensors<br><b>Laboratory (CC-24)</b> | <b>Lab. Session #4</b> (MZ, EP, RC):<br>storing data in the flash<br><b>Laboratory (CC-24)</b>          |  | <b>Lab. Session #8</b> (MZ, EP, RC):<br>TTN Mapping<br><b>Laboratory (CC-24)</b>                     | Surveys and Diploma delivery<br><b>Laboratory (CC-24)</b>                             |
| 17:00 - 18:00 |  |   |  |  | Closing   |

# GitHub

All material (slides, code, examples) will be available on this repository:

<https://github.com/marcozennaro/walc2019>



Hands-on sessions

"Be excellent to each other", asking / helping is OK.

Google error messages to fix issues.

Coping blindly does not lead to new insight.

Reading other people's code helps a lot.

# Books on IoT

A book is not required for this workshop.

This [Wiki](#) has [a list of books](#) on a range of topics.



Feedback?

Email us

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