Labs and Teamwork

QUICK GUIDE

Introduction to the Lab environment, available materials, conventions, etc.

POLITECNICO DI TORINO

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Organization

- Schedule
    - Every Monday
        - From 16:00 to 17:30 (with teachers)
        - Up to 18:30, with partial support (mainly in the second half of the course)
    - 5 in-lab exercises
    - 9 supervised group work for project development
        - with teachers

Organization

- Lab PCs
    - Pre-installed with
        - Ubuntu Linux
        - Python 2.7.x
        - PyCharm
    - Log-in
        - Procedure reported on the computers
    - For PyCharm
        - Log-in with your own JetBrains student account
- You can bring your own computers/materials

Materials (currently available)

- 2 Raspberry Pi
  - Bundled as development bench
  - Accessible through ssh or http
    - shared components
  - Pi-1 hosts a RazBerry module (Z-Wave)
  - Pi-2 is customizable on request

Hue

- 1 Philips Hue bridge
- 7 Hue bulbs
- 1 Friends of Hue LED strip

Z-Wave

- 5 Metering Plugs
- 3 Multiple Sensors
  - Light
  - Humidity
  - Temperature
  - Movement

ZigBee

- 5-10 Metering Plugs

MyHome

- Demo wall with various components
  - sponsored by BTicino

Pebble Smart Watches

- 2 Pebble Classic
- 2 Pebble Time
- <u>https://www.pebble.com/</u>

Fitness Trackers

- 1 Jawbone Up3
  - with heart rate measurement
  - https://jawbone.com/fitness-tracker/up3
- 1 Fitbit Flex
 - https://www.fitbit.com/flex

Material (on request)

- Raspberry Pis (with SD cards)
- 5 RaZberry (Z-Wave controllers)
- 2 ZigBee dongles
- Arduino boards
- EnOcean devices (temperature sensor, rocker-switch)
- Spare hardware
  - Breadboards
  - LEDs
  - Resistors
  - …

Material (on request)

- 7 USB-Bluetooth adapters
- 7 USB-WiFi adapters
- 3 LCD Touchscreen 2.8"
- 2 USB Microphones for Raspberry Pi
- 2 USB WebCams
- 2 Proximity sensors for Raspberry Pi
- 5 RFID/NFC Keyfobs
- 3 RFID/NFC Stickers
- 5 RFID/NFC cards
- 2 RFID/NFC bracelets

Material (on request)

- 1 active speaker
- 1 Mini Thermal printer
- 9 Bluetooth beacons (Estimote)
- 2 USB Powerbanks
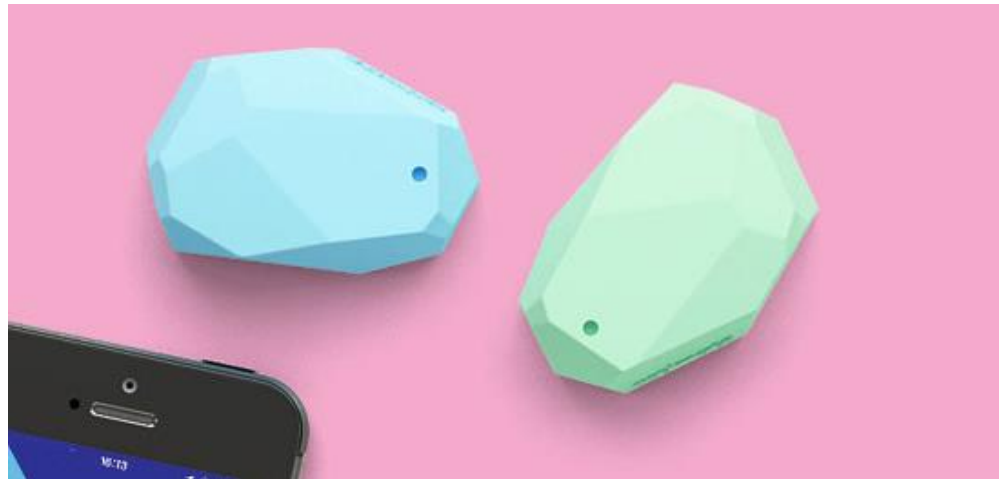
Group Projects

RECAP

Requirements for the final projects and team composition.

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Final project

- Theme
  - "AmI for Health and Well-Being"
- Topic
  - Chosen together upon group proposal
- You can use the tools made available during the course
  - and build what you need, if not available
- Mainly developed during labs

Requirements

- Code versioned on a private GitHub repository (1 per team)
  - https://github.com/AmI-2016
- Project documentation with photos / videos (GitHub Pages)
  - public, linked to your team repository
- Must not replicate existing (available) devices
- No hardware-only or software-only projects

(from the course website: http://bit.ly/polito-ami)

Teamwork

- 3-4 people per team
- You choose the team members
  - we can help, if needed
- Your capability to work in group will be evaluated, too
- Team composition and project ideas at
  - https://docs.google.com/document/d/1hA4I293C8lgLQDumWmQg0-VF0SGf9qqF38TVFZEZw0U
  - Deadline: **March 16, 2016**

Python

ASSIGNMENT

An exercise to getting started with Python

Python… in practice

By using the PyCharm IDE, realize the following exercises:

1. Write a program that asks you for two numbers (interactively), sums the numbers, and prints the result on screen.

2. Given a string, return a string made of the first two and the last two chars of the original string.
       e.g., **'spring'** *yields* **'spng'**
    If the string length is less than two, return the empty string.

Questions?

01QZP AMBIENT INTELLIGENCE

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