The Rainbow Indoor Positioning System

LO53 – Positioning systems : techniques and applications – P2016

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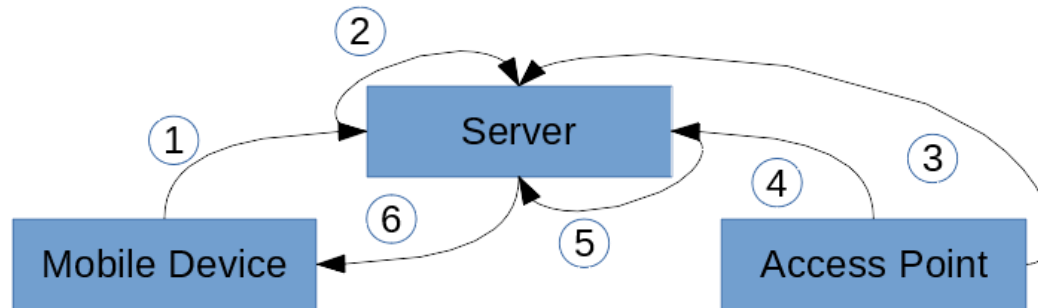**Vincent Mérat**

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The Rainbow Indoor Positioning System

- The system
- Server
- Access point
- Android application

The system

1. Location request
2. Add MAC address in the list
3. Read the list of MAC Address
4. Send data about devices
5. Compute location
6. Send coordinates

Serveur

- Developped with Python Django
- Store the list of MAC address to monitor
- Store data about RSSI of MAC address
- Store the Calibration info
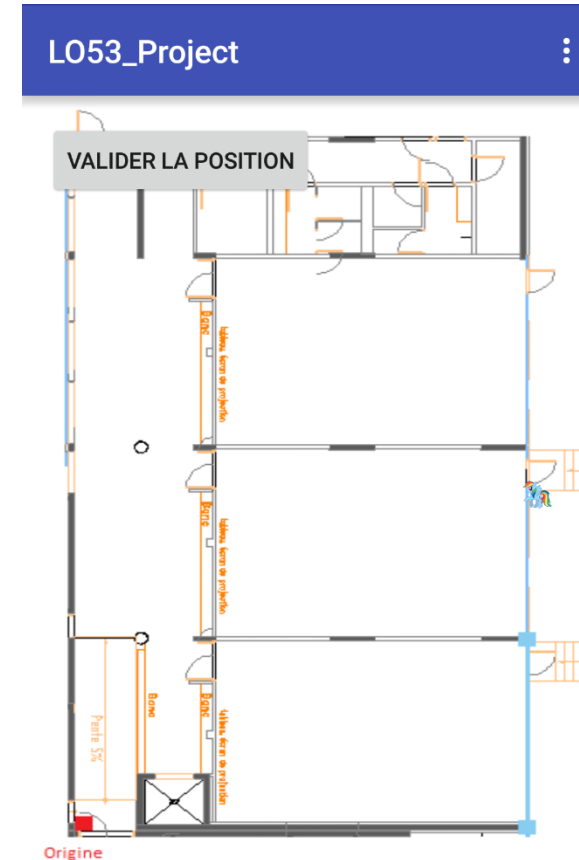- Compute location of the device

Access Points

- Use the lib pcap to get the RSSI
- Read the list of MAC Address on the server via HTTP
- Monitor paquets on the network
- Extract MAC Address

Android Application

- ## Callibration
  - ### Origin point
  - ### Step by step

- ## Location
  - ### Request to the server (sending its MAC Address)
  - ### Read answer via JSON

Results

- 3 Access Points
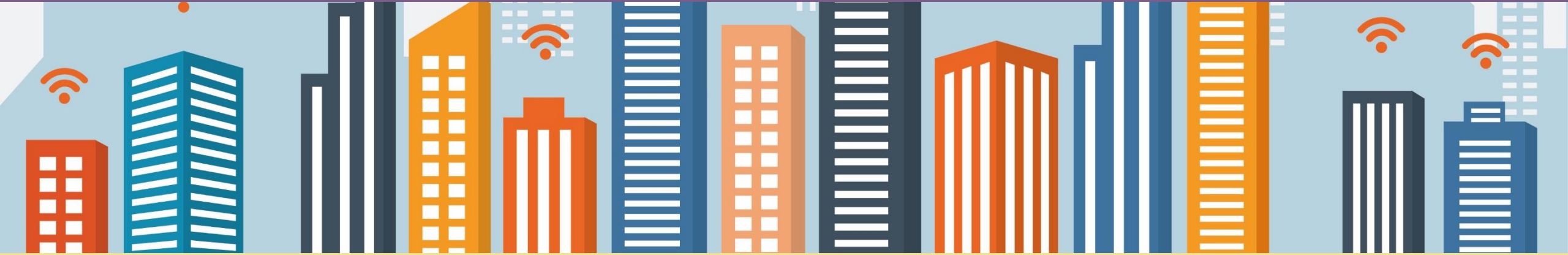 - (2 in H010, 1 in H011)
- Step : 3M
- Precision 2M

Conclusion

- Complex project
  - 3 totally different parts
    - Server (Python)
    - Access Point (C)
    - Mobile Device (Android)

- Improvement
  - Maps Manager
    - Multiple maps in the Server
      - Send to the mobile device on first location

Thank you for your attention !

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