

Patient Positioning System

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Research Question:

The pressure on healthcare is increasing with more short-term hospitalization and day-hospitalization visits. In order to cope with this drastic increase, improvements in hospital logistics are required. Therefore a solution is proposed to manage patient flows in-hospital by developing a patient positioning system using the **hospital WIFI infrastructure** to accurately position a person using his smartphone (or in a later phase using a dedicated wristband). This system implements a technique named **Received Signal Strength Indication (RSSI) Fingerprinting**.

The goal: is to realize a localization system with room accuracy that is able to track different patient's and visualize this through an online User Interface Service (UIS).

Method

Two application

1 Training phase (setup)

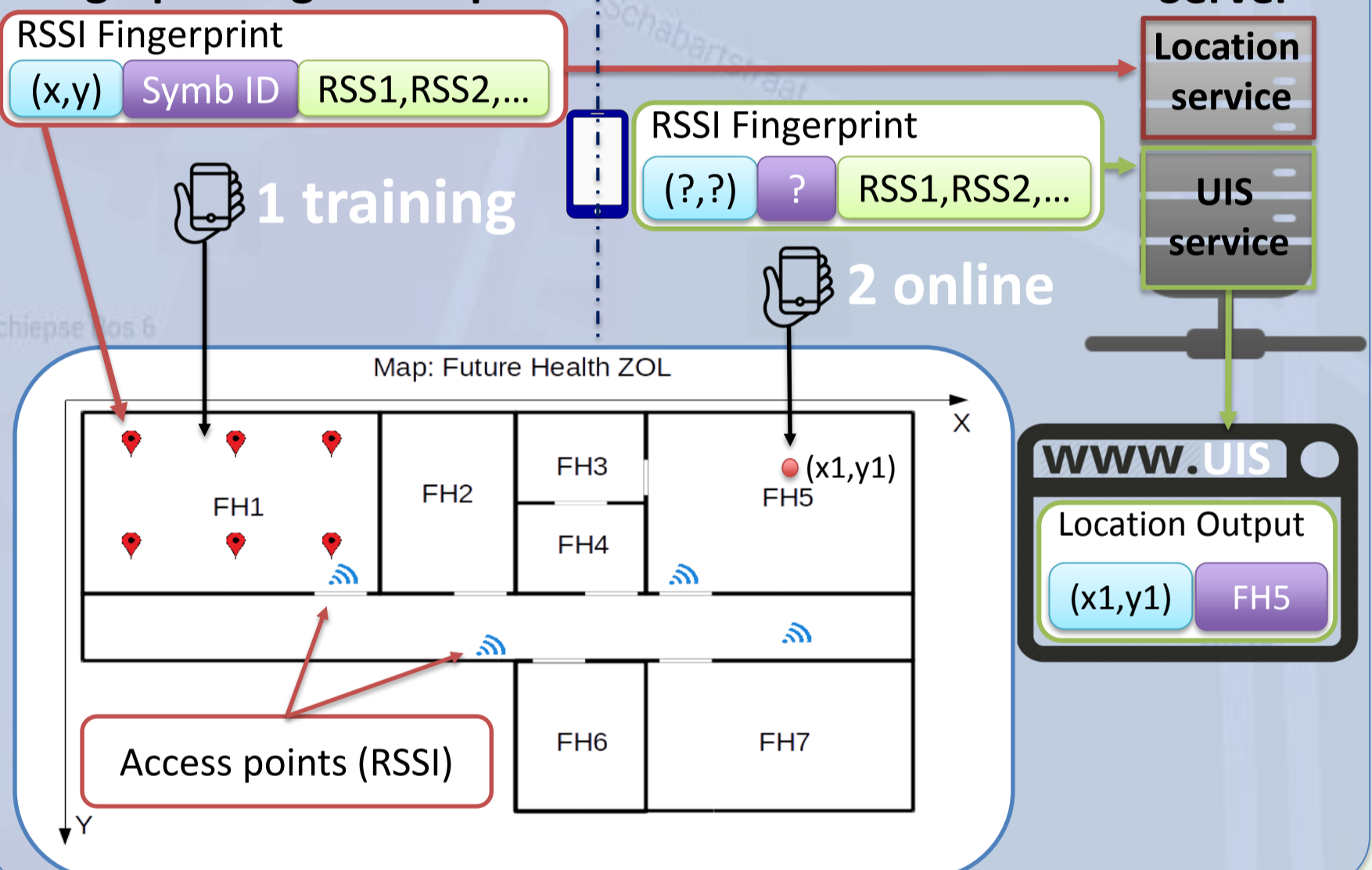
- Mapping rooms with RSSI fingerprints
- Sends data to the location service

2 Online phase (running)

- Patients application
- Runs in the Background
- Interval Wi-Fi scans
- Sends data to the UIS service
- Data results in a location output



Fingerprinting technique

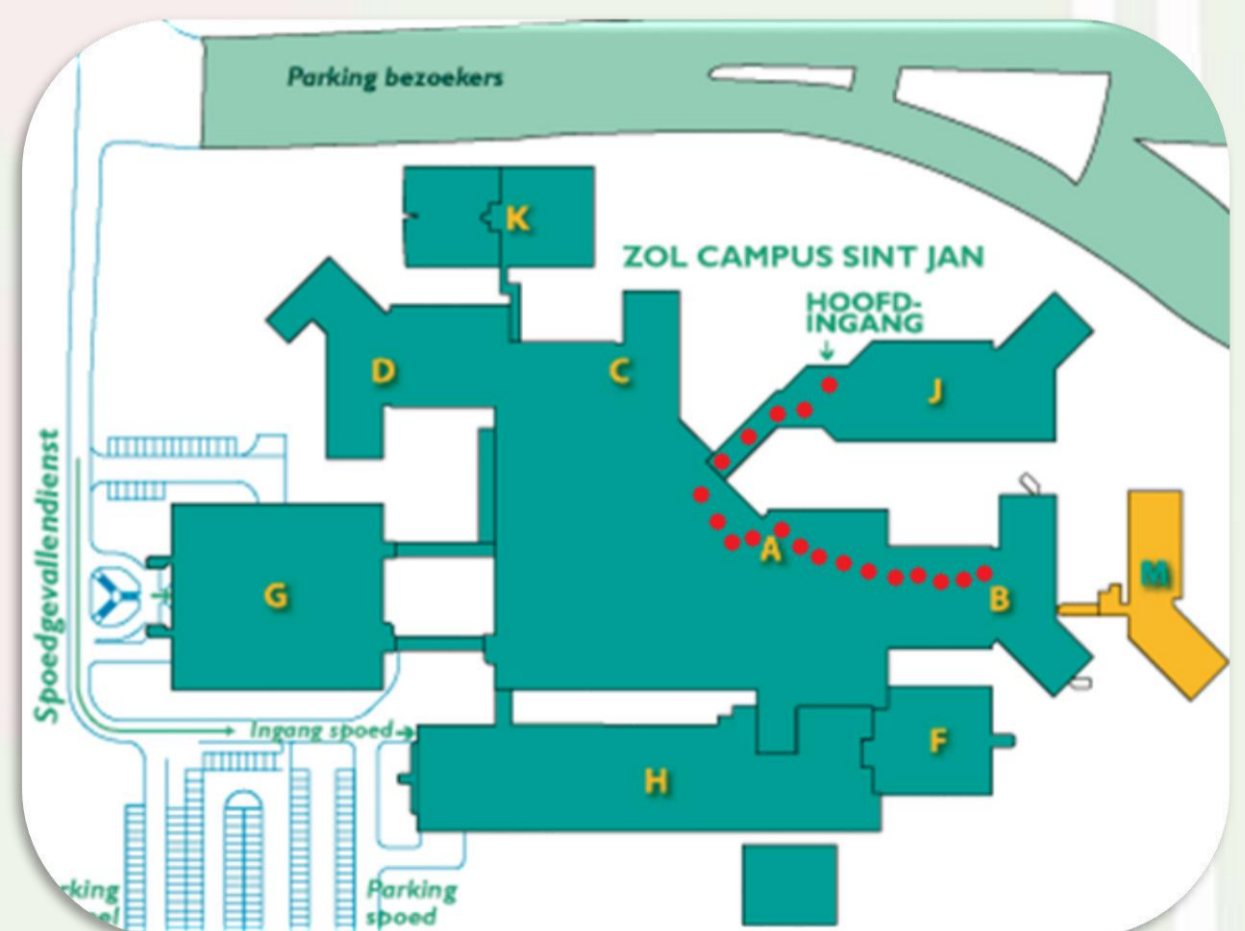


Results and conclusion

The online UIS service is capable of keeping track of different patients throughout a specific department within the hospital. From testing it's known that the Redpin location service is capable of returning a location back at room accuracy. With this information its possible to plot a patients path on a floor map or plot their waiting time in a chart.

Patient location log

Patient	ID	Symbolic ID	Map name	Time-stamp
Lars Grieten	88915	FH3	Future Health	2015-03-31 15:20:25
Davy Struys	88916	FH1	Future Health	2015-03-31 15:20:25
Marijn Lemmens	88917	FH6	Future Health	2015-03-31 15:20:25



Promotoren / Copromotoren: Ing. Frank Appaerts, Prof. Dr. Lars Grieten 2014-2015