



Applications for Offline Networks

Semester thesis

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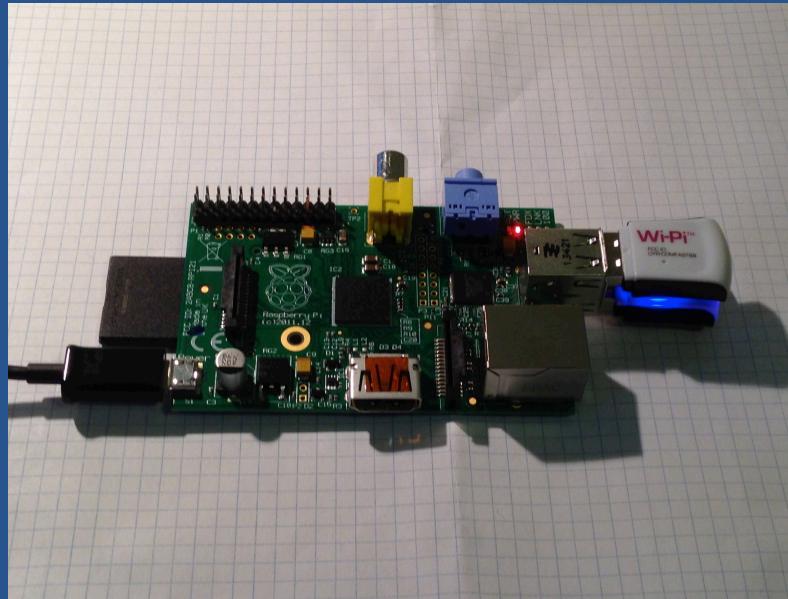
Supervisor: Dr. Panayotis Antoniadis

Thanks also to Abdullah Alhussainy and Dr. Karin Anna Hummel

Offline Networks = Wireless Routers + Captive Portal

→ *Enable local communications and interactions without Internet*

Raspberry Pi



a simple webpage



Objectives

- To make it easy to design and deploy local applications for the offline networks.
- To make it easy to collect data from local interactions for different reasons (scientific, commercial and so on).

Why do we need an offline network?

- Anonymity
- Privacy
- Free and easy access (no need for additional apps, url typing)
- Absence of Internet (train, remote areas, developing countries)
- Local interactions
- Other

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- Other?



Join “LocalApps” SSID and open browser



Connect the server:
collect, view and
analyze the data



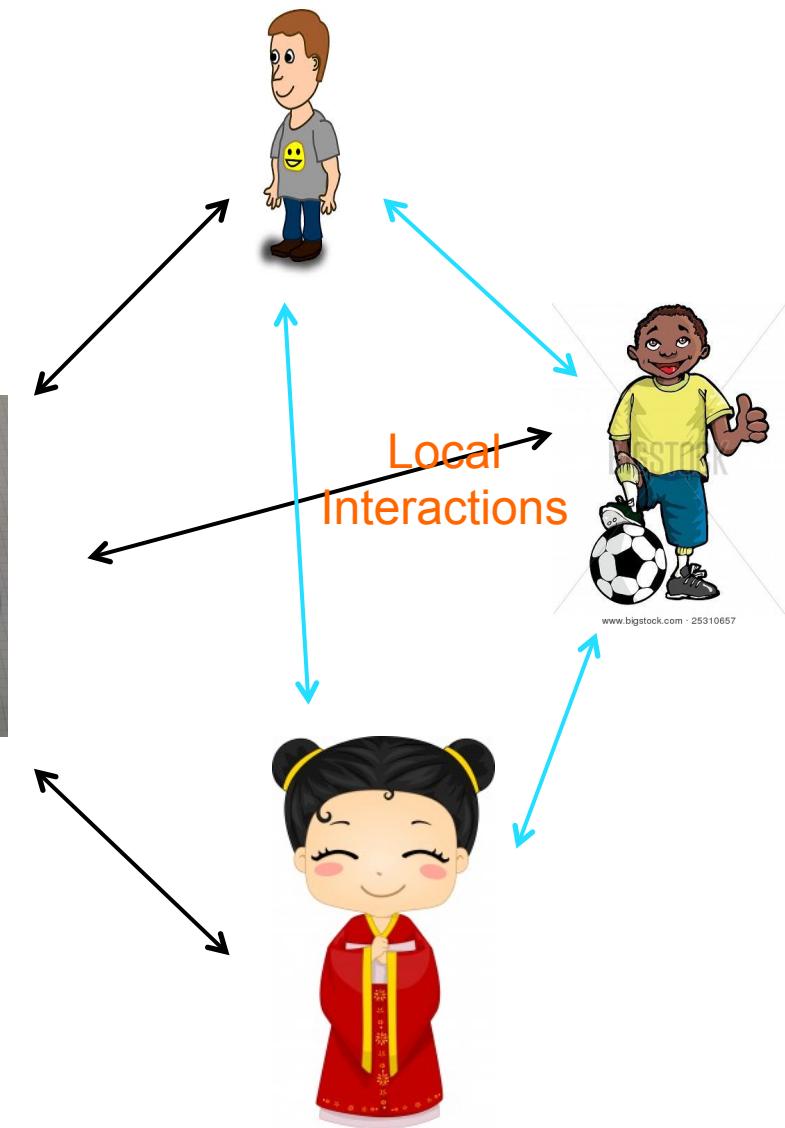
Administrator

FTP

Offline Network

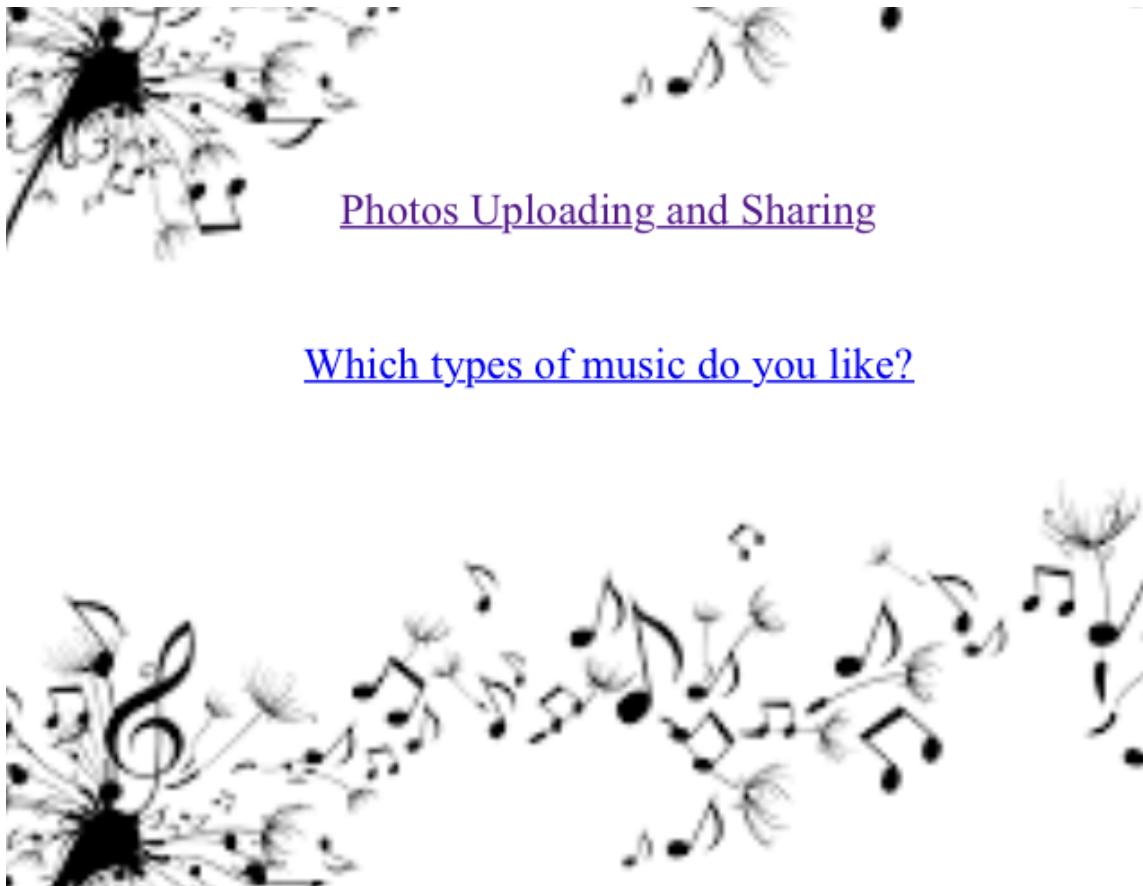


Configure the settings
(raspberry pi and its
network interfaces) of
this local network



See the results on the map (online)

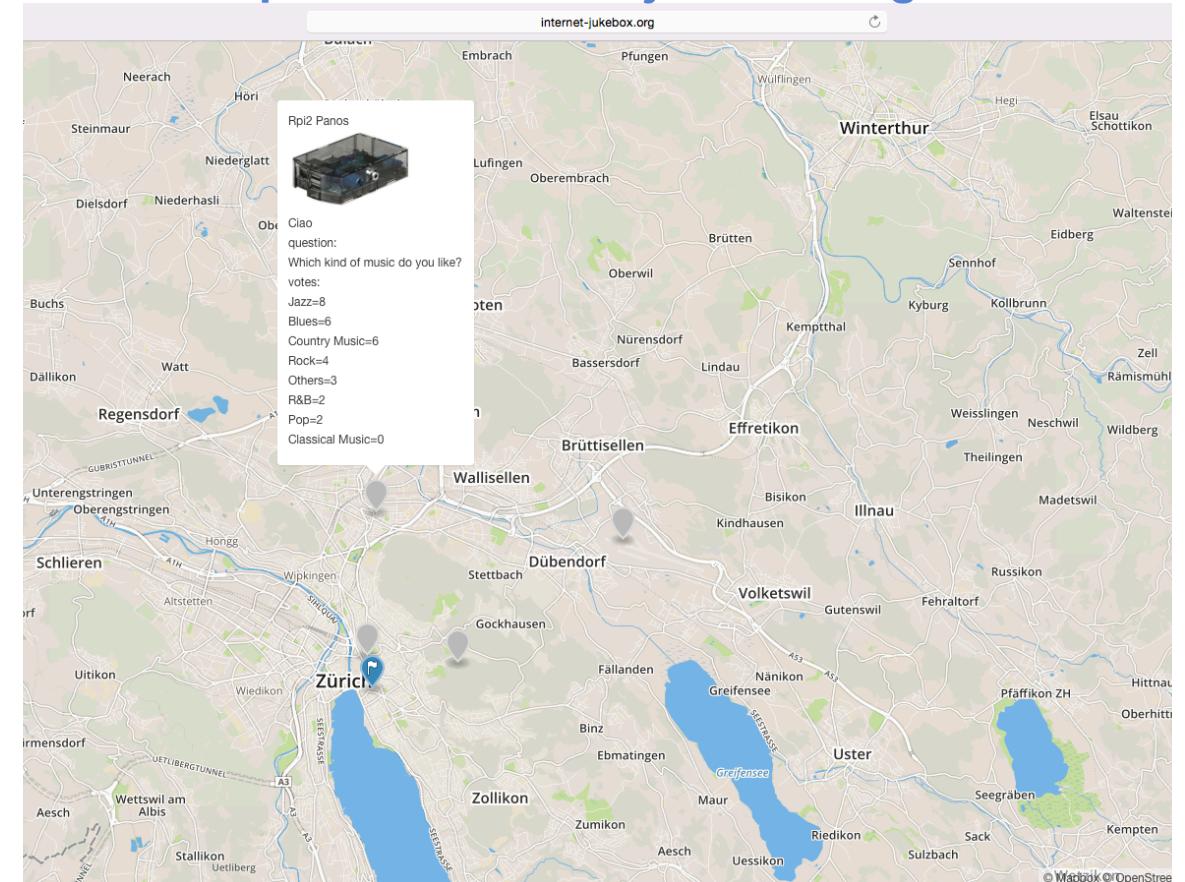
<http://localapps/>



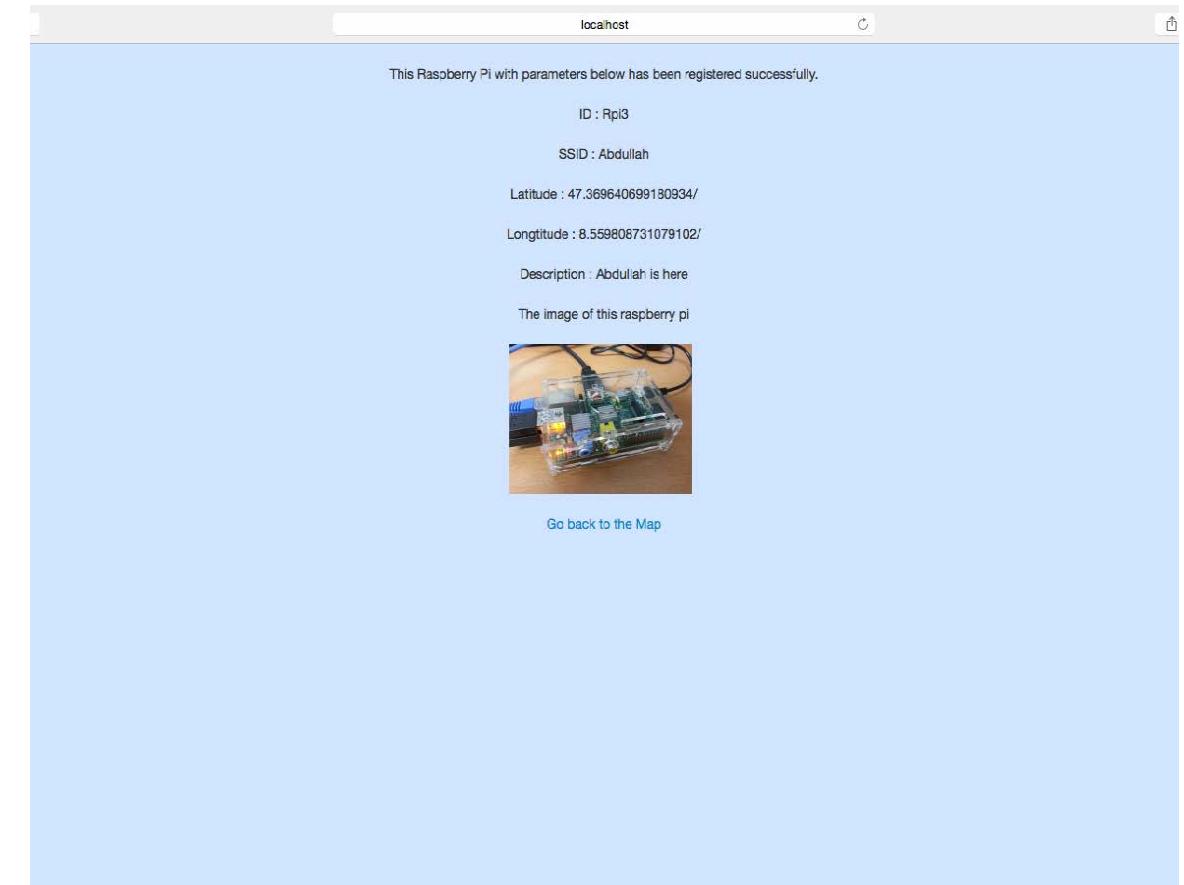
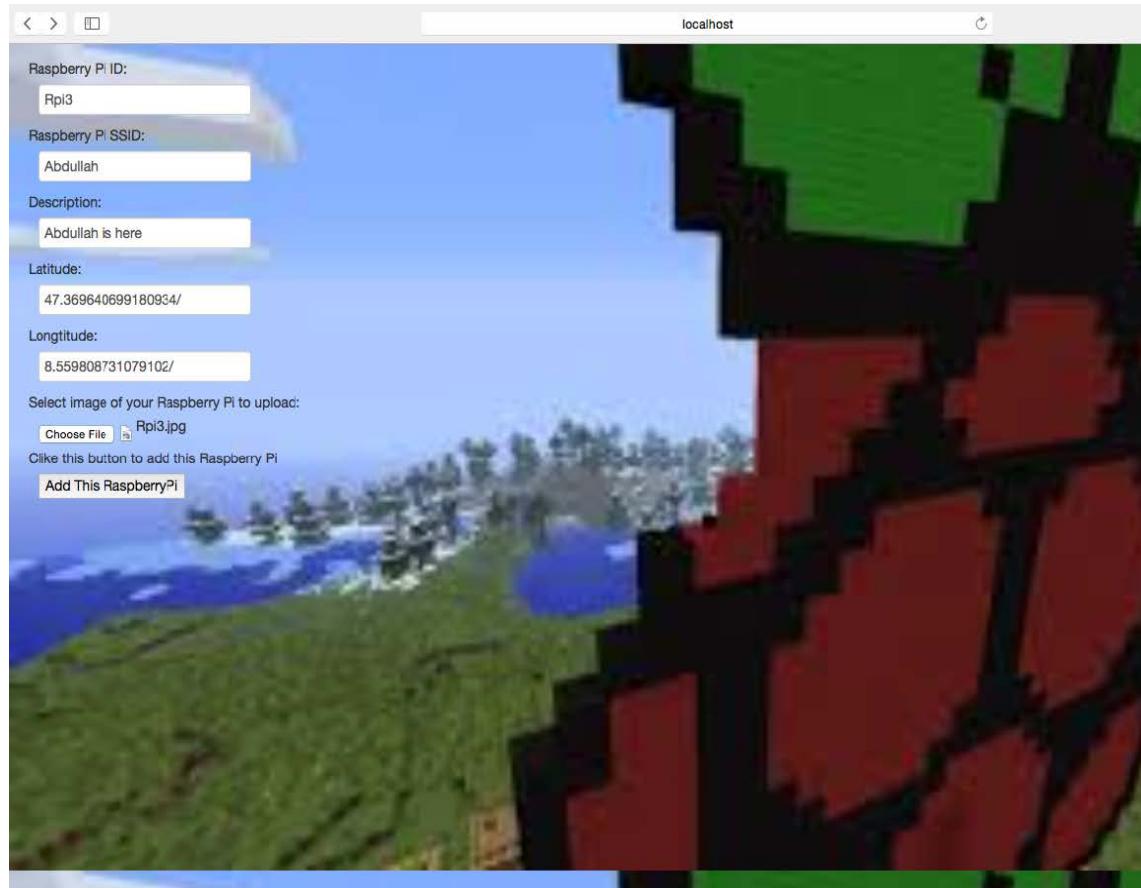
Photos Uploading and Sharing

Which types of music do you like?

<http://www.internet-jukebox.org/server/>



Register Raspberry Pi (admin panel)



Set your own questions/answers (admin panel)

Please set the id of the raspberry pi, the title and the questions of the questionnaire

Please type the ID of the raspberry pi you have set
For example "Rpi1"

Rpi3

Please type the title of the questionnaire here
For example "Please select one or more types of music"

Why do we need an offline network?

Please type the questions of the questionnaire here
When you finish one question, press '\n', then enter the next one
Please don't type '\n' at the last question you enter
For example "Jazz\n Classic Music\n R&B"

Anonymity
Privacy
Free and easy access
Absent of Internet
Local interactions
Other

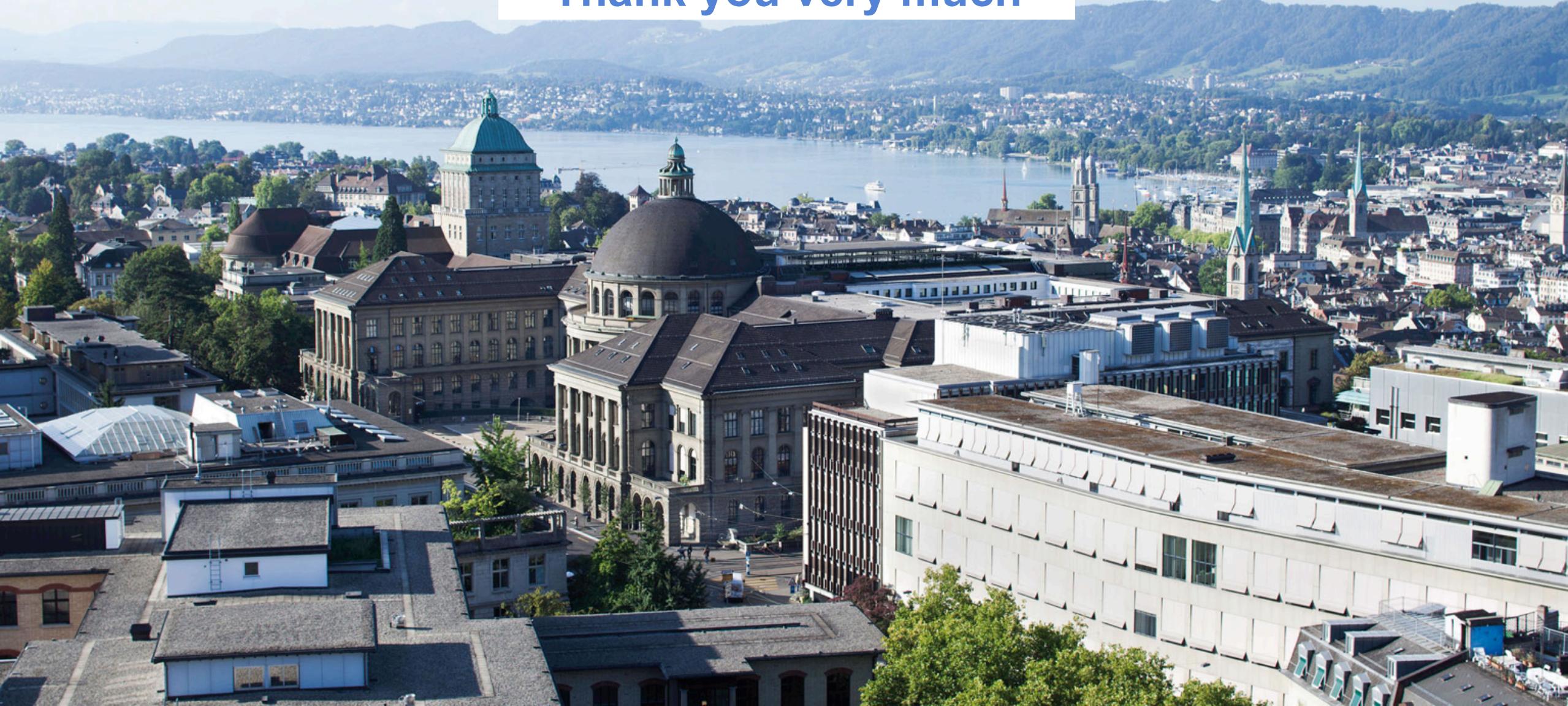
Please press save when you finish the setting

Save

Summary

- Objectives (reminder)
 - To make it easy to design and deploy local applications for the local area networks.
 - To make it easy to collect data from local interactions for different reasons (scientific, commercial and so on).
- Contributions
 - Easy to use and customize applications: questionnaire, photo sharing, white board (without database)
 - Data collection platform (using just FTP for data transfer and [MapBox](#) for visualization)
 - Administrator interface
 - [Git Repository: https://github.com/LuyuanZ/LocalApps](https://github.com/LuyuanZ/LocalApps)
- Future work
 - Finalize installation guide
 - Experimentation in the wild
 - Data analysis

Thank you very much



Appendix: Tools used

- Server
 - Runs on a standard shared web hosting space
 - Only just php/javascript and text files
 - Uses MapBox for visualization
- Local Apps: Photo_upload / Questionnaire
 - Based on open source templates (AjaxPoll)
 - Data management: JSON and text files
- Documentation
 - Step by step process for setting up the raspberry pi
 - Administrator panel for setting up the questionnaire and the server
 - Github for hosting the git repository