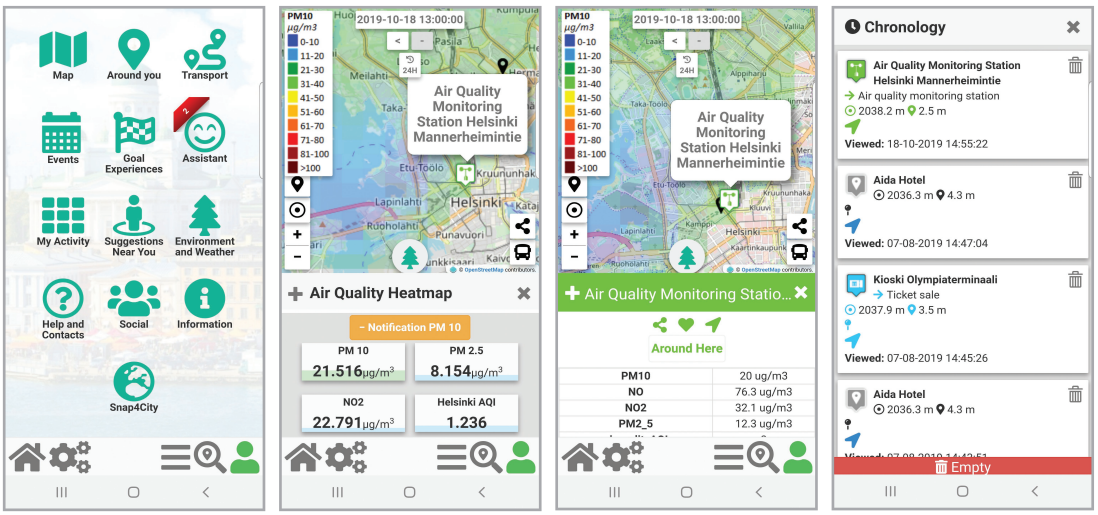
Helsinki Pilot on Environmental Data

HELSINKI IN A SNAP!

Citizens and tourists may use “Helsinki in a Snap” mobile App to access at the ultimate information from the city: weather forecast, air quality heatmaps (also specific for Jätkäsaari), air quality sensors, weather heatmap, predictions from Enfuser FMI for PM10 and PM2.5, prediction from GRAL DISIT Lab of PM10, general services, participating in the forum discussion, providing comments, ranks, etc. The users by using the App can:

- Become aware about the environmental and weather conditions and forecast in real time;
  - controlling environmental status with Heatmaps and mini dashboard;
  - subscribe to one or more alert services attached to environmental or weather (real time and predictions);
  - see specific status views for Jätkäsaari island;
  - provide values of pollutant in any specific point of the map;
  - see the values measured by each specific sensor.
- Take decisions and provide suggestions to city for improving his life and the city life in general;
  - share a comment on the in-App Discussion Forum;
  - perform a travel plan to reach the POI, reach it;
  - rate one or more services, drop a comment and upload a photo for them.
- Be engaged by:
  - providing suggestions to users for informing about changes in the city, events, environment requested alerts;
  - requesting contributions, stimulating comments and discussions.
- Bccess to a number of other information on mobility, transport, personal marking of locations, visiting city, saving personal data, sharing position with friends, etc.

User Engagement: Participatory Contribution, Travelling Together



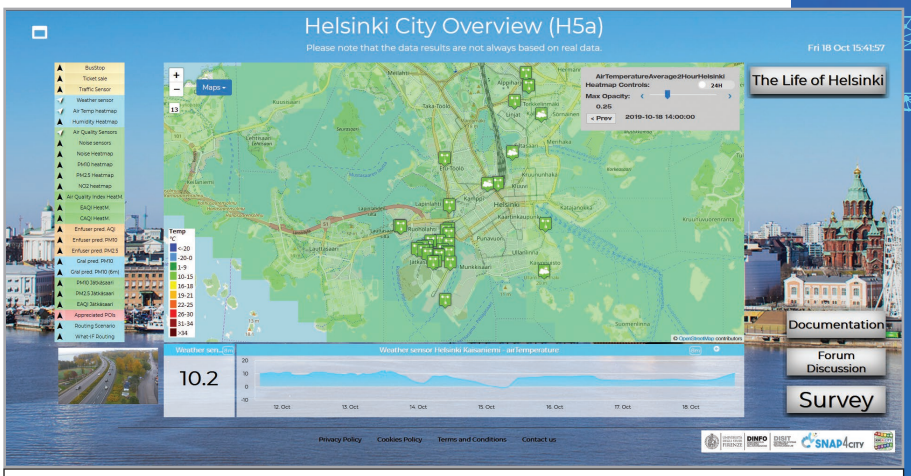
Mobile App on Google Play and Apple Store

On the other hand, City Officials needs to understand how much pollution affects the quality of the air that citizens breath in order to properly regulate urban mobility and give to all the awareness that they are living in a city sensitive to the quality of life. To this end, specific solutions and sensors become fundamental, such as: air quality parameters, weather forecasts, pollution forecast, etc., together with the knowledge of the city structure, prediction model for environmental variables. In the Dashboard, the operator can see trends of sensors, perform drill down on their values, observe the heatmaps, perform the animations, and finally perform routing and what-if analysis.

In order to assess the air quality in each part of the city, the level of pollution aspects have to be measured, for example: SO2, NO, NO2, O3, CO, CO2, PM10, PM2.5, etc. Some of them are influenced by traffic in different ways, while others are also influenced by house heating, industries, boats, etc. Specific measures may depend on the sensor position and location context, on calibration, time of the measure, season, etc. A measure performed along a primary street in terms of traffic may strongly differ with respect to the actual values just in the garden of the house behind the primary street.

Dashboard with predictions of environmental parameters in cities such as that reported in the following Figure. Predicting environmental data may help city users to make decision on enjoining the city, even if strong traffic and industrial growth are possible on specific streets large part of the cities are not polluted. To this end, FMI-ENFUSER predictions and GRAL based prediction of Snap4City have been made accessible on Mobile App and Dashboards. Where, predictions are performed 24 hours in advance, for each hour. Additional dashboards have been also provided to analyse:

- Differences from Actual vs predicted valued on PM10. Predictions has been taken from the FMI, as well as computed on the basis of DISIT lab tools 24 hours in advance.
- Specific trends in the Jatkasaari island: value and detailed Heatmaps
- Personal Dashboard on specific IOT environmental devices hosted by citizens.



https://www.snap4city.org/dashboardSmartCity/view/index.php?iddasboard=MTQwNg==

The Snap4City has created Helsinki organization in the platform, ingested the data and realized the data analytics, created the mobile app, the MicroApplications, the Dashboards and the all the tools needed to create the solution and put in production. Snap4City semantically aggregates any kind of data coming from any sources and semantically aggregates them in compliance with the smart city ontology Km4City (https://www.km4city.org). Snap4City has been developed in the context of Select4Cities PCP mainly managed by FVH in the context of Helsinki.

According to the assessment performed by a number of City Official and ICT experts the solution has been very appreciated. The Snap4City has also provided support to a number of Citizens that hosted specific IOT devices. They connected the devices, and a Dashboard has been created for personal usage. Most of their data are used for computing the Heatmap in the Jätkäsaari area.

The mobile app can be installed from Google Play or Apple Store, the Dashboards are accessible from https://www.snap4city.org in the public set, at the link reported. On the dashboards, you can navigate on predictions, in past and future and you can see the 24H animation of the next and past days. And:

- https://www.snap4city.org/dashboardSmartCity/view/index.php?iddasboard=MTczMg==
- https://www.snap4city.org/dashboardSmartCity/view/index.php?iddasboard=MTc0MA==
- https://www.snap4city.org/dashboardSmartCity/view/index.php?iddasboard=MTgwOQ==
- https://www.snap4city.org/dashboardSmartCity/view/index.php?iddasboard=MTgwNw==

Dashboards for City Operators: Environment, Mobility, Transport, User Behavior, User Engagement, etc.

Multiple heatmaps. Environmental data, social data, mobility, culture and tourism

Extended version accessible from: https://www.snap4city.org/528
Contact: https://www.snap4city.org
Partners: Select4Cities, Forum Virium Helsinki