CITI-SENSE

Development of sensor-based Citizens' Observatory Community for improving quality of life in cities

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Contents

General project overview

CITI-SENSE is a Collaborative Project partly funded by the EU FP7-ENV-2012, with duration of 4 years, started in October 2012. The consortium is composed by 27 partner institutions (academia/research centers and SMEs) coming from Europe, South Korea and Australia.

CITI-SENSE allows citizens to communicate about environmental quality of their surroundings, important to their health and wellbeing: outdoor air, school indoor environment and public spaces.

From 2-4 April 2013, 24 partners of CITI-SENSE project and members of the Technical Advisory Group (TAG) met in Cambridge, at the Queens' College, to discuss the progress of the first 6 months and future steps.

www.citi-sense.eu

SEVENTH FRAMEWORK PROGRAMME

CITI-SENSE is a Collaborative Project partly funded by the EU FP7-ENV-2012 under grant agreement n 308524

Citizens' Observatory Workshop *(by Elena Turco, S&C)*

One of the most relevant Dissemination events in the first 6 months of the project was the active participation of several CITI-SENSE partners at the Citizens' Observatory Workshop, organized in Brussels on 29-30 January 2013 by the EC DG Research & Innovation I3, Management of Natural Resources, Earth Observation Sector. The aim of the workshop was to help establishing an open and collaborative framework among the Citizens' Observatories Projects.

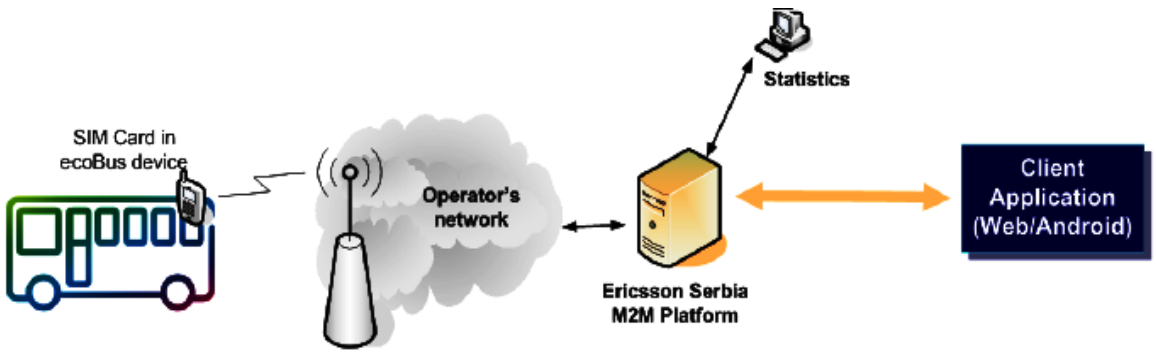
The Citizens' Observatories Projects are five FP7 current projects (CITCLOPS, COBWEB, OMNISCIENTIS, WESENSEIT, CITI-SENSE) funded under the topic ENV.2012.6.5-1 "Developing community-based environmental monitoring and information systems using innovative and novel earth observation applications". They aim at developing novel technologies and applications in the domain of Earth Observation, trying to exploit the capabilities offered by portable devices; to enable an effective participation by citizens in environmental stewardship based on broad stakeholder and user involvement in support of both community and policy priorities.

The agenda started on 29th January with plenary sessions, where the coordinators had the opportunity to introduce their projects. In the afternoon, parallel sessions dedicated to "Data management and interoperability" and "Engaging the citizens" covered both technical and social aspects. On 30th January the workshop continued with parallel sessions on "Innovative and smart EO Technologies" and "Pilot cases", giving the opportunity to different partners to present both the technical solutions and to describe the scenarios for citizens' engagement. Conclusions from Alan Edwards (EC) underlined the importance of such event to share knowledge and experiences, establishing collaborations amongst the 5 Citizens' Observatories.

E2E Prototype – Belgrade school *(by Hai-Ying Liu, NILU & Boris Pokric, DNET)*

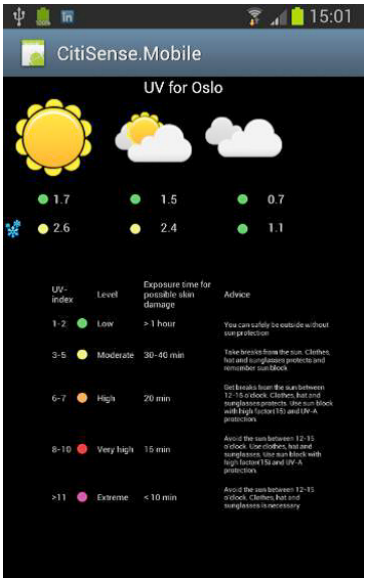
The aim of the "end-to-end" pilots' implementation prototype is to enable the consortium to prepare for the pilot cases development in the 9 cities (Barcelona, Belgrade, Edinburgh, Haifa, Ljubljana, Oslo, Ostrava, Vienna and Vitoria). This will be done through a pre-prototype development based on already existing elements of the sensor-platform-product-user chain, for a limited number of cases considered mature at this stage. These prototypes will be used to demonstrate the CITI-SENSE whole information chain in three pilot cases, two on indoor school environment in Belgrade and Oslo, and one on UV forecast.

For the Belgrade indoor case study, it was selected a school having an automated air quality station in the vicinity (about 300m) used by the city authority. Initially, one device based on EkoBus 700 technology is placed in a classroom and data on CO, CO_2, NO_2, Temperature, air pressure and humidity will be collected. All the information will be elaborated by the EkoBus 700 associated server, resource directory and application.



E2E Prototype – UV Case study *(by Mirjam F. Fredriksen, NILU)*

The first demo on UV forecast will simply detect the location from the mobile phone, send this GPS info to the UV server, and then obtain the relevant UV-index from the server for the user location. This will then be displayed on the mobile phone.



The UV forecast data is currently produced daily and displayed on www.uv.nilu.no. A service takes the UV forecasts from the database and puts them into SensApp, a platform developed by SINTEF. When the phone delivers a request for a forecast to a web service, SensApp returns the data to the phone.

In the future, the UV forecast prototype will be improved and expanded to estimate personal UV daily doses. This information, along with risk assessment for sun burn and advice on behavior, will be displayed on the user's mobile phone. Such system, already available in Oslo, will be tested on a cohort in Vitoria, Spain.

E2E Prototype – Oslo school *(by Britt Ann K. Høiskar, NAAF & Andrei Tamilin, U-hopper)*

For the Oslo indoor case study, the Horten High School has been selected as pilot. The school is composed by two buildings with about 1000 pupils, 15-19 years old. The first step will be to establish good dialogue with local school authorities, county real estate manager, headmaster, teaching staff, technical staff, health & safety representative. Short time measurements (T, RH, CO_2, Radon, airborne dust, sedimented dust, lighting, microorganisms) will be performed, using static sensors able to describe the status of the indoor air environment, together with user surveys (subjective data - health symptoms and indoor environmental factors) and visual assessment of buildings and technical installations. In particular, the CivicFlow platform developed by U-Hopper (www.civicflow.com/) will be exploited as a civic engagement platform for the Oslo school case study, to receive the subjective perception from the users.

The general underlying idea of CivicFlow is that citizens can act as mobile and pervasive sensors, performing various sensing tasks related to the surrounding environment. This includes both the usage of rich built-in sensing capacities of smartphones or the usage of external sensors connected to the phone, such as Bluetooth connected personal health monitors, air quality sensors, etc. On the other side, sensing can be performed by directly inquiring people on their subjective perception of the environmental conditions. Acquisition of perceptions is organized in form of questionnaires (CivicFlow sensing tasks), distributed via web widgets (embedded into school portal), mobile web app paired with QR codes and mobile app.

Andrei Tamilin, CTO of U-Hopper, explains:"From the technical perspective the platform is composed of a client side, which currently can run in a browser or as a stand-alone mobile app, and a back-end, which handles the execution of the campaign and the collection and analysis of data. A simple web interface allows customers to setup and manage civic engagement campaigns."

Partner presentation: U-Hopper

(by Daniele Miorandi, U-Hopper)

U-Hopper (http://www.u-hopper.com) is a high-tech startup founded in late 2010 and based in Trento, northern Italy. Born as a spin-off of the CREATE-NET international research center, it develops innovative mobile computing solutions and services. The focus of U-Hopper is on exploiting the enormous potential of modern smartphones to enable novel types of value-added services. This includes "unconventional" usages of the smartphone, including its exploitation for running geo-localized crowd-sensing campaigns or for building in a privacy preserving way rich user profiles.

"U-Hopper is at the forefront of mobile technology and has the mission to make high end research in the ICT with ready to use solutions for the common people. At U-Hopper we believe that the best way to foster innovation is to make the most advanced application and services at the easiest for personal communication. We work for innovating on the move!" states Diego Taglioni, U-Hopper's Chairman.

U-Hopper is contributing to CITI-SENSE its CIVICFLOW platform (http://www.civicflow.com/) a civic engagement platform leveraging active human participation with the power of mobile computing and sensing.

Upcoming events

Activity/event	Where	When
2013 Green Week (Conference and Exhibition)	Brussels	4-7/06/13
International Conference on Policy Making 2.0	Dublin	17-18/06/13
INSPIRE Conference	Florence	23-27/06/13
2013 Conference Environment and Health – ISEE, ISES-ISIAQ	Basel	19-23/08/13
Interviews for DEMO video by European Service Network	Barcelona, Belgrade and Oslo	September 2013

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