Framework for Service Composition Based on Ontologies for the Aggregation of Knowledge and Information for Intelligent Buildings (FCINT)

Sponsored by the European Fund for Regional Development and the Government of Romania

Project Progress

The FCINT project, co-sponsored by the European Fund for Regional Development and Romania's Government (ID551, cod SMIS-CSNR 12038), is hosted by the University Politehnica of Bucharest.

All the activities initially specified were successfully finished during the last project phase. All the design objectives being accomplished, the University Politehnica of Bucharest is able to propose from now on a powerful framework with SOA for software services in intelligent buildings.

University Politehnica of Bucharest

FCINT Overview

The FCINT framework capabilities were successfully demonstrated in a real life environment, the Passive House on the Polytechnic University campus. To do that, a couple of new FCINT software services have been developed. Using the service composition facility with the Smart Building Controller, these software services provide real time data for intelligent building monitoring and control.

Intelligent building operation algorithms are implemented as system policies, whose effectiveness were demonstrated during both the summer and the winter time. Complimentary hardware has been added to the Passive House HVAC system and special policies have been designed in order to provide energy efficiency, while maintaining a high comfort level.

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The powerful FCINT ontology based framework and the associated software services available provide an interesting and promising basis for further system development. This can be done by the researchers and developers of the FCINT project team, which have acquired during the project high level skills in ontology based frameworks and associated portals, service oriented architecture, interfacing and communication protocols, intelligent building monitoring and control with high level security and energy efficiency.

The FCINT project results were highlighted by all the participants at the 4th Project Workshop, held in November 14-17. They appreciated the good theoretical and practical aspects of the project team presentations and, more important, the high quality of the FCINT framework and the associated software developed.

FCINT Publications

Andrei Voinescu, Dan Tudose, Dan Dragomir, *A Lightweight, Versatile Gateway Platform for Wireless Sensor Networks*, Proceedings of the 12th RoEduNet IEEE International Conference, Constanta, Romania, September 26-28, 2013, pp. 87-90.

Wireless Sensor Networks enable the Internet of Things through their many applications, and as such require multiple, flexible gateway platforms. Gateways in Wireless Sensor Networks are bulky, difficult to use devices requiring special deployment and extra programming effort. We designed a lightweight, extremely portable, dual-processor USB device with an optional external antenna. Our design

proves to be versatile both on the USB side, where it can appear as a serial connection or a wireless network interface, and on the RF side, where it matches the hardware of our wireless sensor platform, and therefore shares much of its codebase.

FCINT Info

FCINT project website: http://www.fcint.ro

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