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OGEMA 2.0 – The Open Source Framework for an Efficient Energy Management System

Nuremberg, 24th February 2015 – embedded world, Hall 4, Stand 548: There is a growing trend for controlling and monitoring functionality of buildings with smartphones. For each utilization scenario the user needs its own devices and different apps which are usually not compatible. The solution of Fraunhofer is OGEMA 2.0 – an Open Source framework on which different several systems, components and applications for energy and building management can be implemented.

One Platform for Many Systems and Components

The Fraunhofer Institute for Integrated Circuits IIS, Fraunhofer Institute for Wind Energy and Energy System Technology IWES and Fraunhofer Institute for Solar Energy Systems ISE developed OGEMA 2.0 – a smart and complete solution which integrates many energy and building management applications in one system. The open source software framework OGEMA 2.0 (**O**pen **G**ateway **E**nergy **M**anagement 2.0) allows the realization of different energy management systems for commercial, private and public buildings as well as industrial processes. Security is a hot topic for OGEMA 2.0. Thus, it is important that the assignment of individual access rights and user rights is very simple. The special features are the multi-layer security concept and the hardware independence of the software.

OGEMA 2.0 is a System Independent Java Framework

The framework uses a Java platform and unified data models for the control of various energy producers, storages and consumers. The integrated app concept allows flexible installation of the application software for different utilization scenarios. Thus, various devices can be controlled via one or more apps with a smartphone. Due to the hardware independence of the software, every user can easily adapt its components to different platforms such as PCs, servers or embedded systems.

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Individual Solutions for Effective Energy Management in Buildings

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OGEMA 2.0 enables the implementation of customized solutions primarily for the local energy management. In addition to that, OGEMA 2.0 unites different communication interfaces to, for example, the Smart Grid and Smart Meter which opens the way for immediate participation of energy customers in smart energy management.

In the field of the building management, the room temperature, humidity and CO² content can be measured and displayed on mobile devices. Actions for optimizing for a healthy indoor climate are recommended automatically, manually, or on the road. The system can also warn of dangers like smoke or flooding through sensors. Photovoltaic systems or cogeneration plants as well as household appliances or lighting can also be included. The modular design of the platform allows many extensions and additions. The interaction of apps and devices helps to save energy costs and increase the home comfort. Apart from energy management systems, other systems like Ambient Assisted Living or Industry 4.0 applications from various fields of applications can be implemented in this framework as well.



Smart Home user interface of kitchen as an application example of OGEMA 2.0. © Fraunhofer IIS/Jasmin Specht | Picture in color and print quality: www.iis.fraunhofer.de/en/pr

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS**Security Concept with Different Rights of Use**

Fraunhofer IIS developed a customizable security. The security can be adjusted to the respective requirements in different levels. The lowest level is suitable for single-user installations in the private domain with individual access rights for apps. The next level of the security concept supports multi-user. The apps generate data for each user group, which can be displayed and analyzed only by the authorized users. Thus, it is possible that different users use the same app without receiving the private data of someone else.

You can download the source code of the framework and a preconfigured demo kit at www.iis.fraunhofer.de/ogema

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Founded in 1985, **Fraunhofer Institute for Integrated Circuits IIS** in Erlangen, Germany, ranks first among the Fraunhofer Institutes concerning headcount and revenues. As the main inventor of mp3 and universally credited with the co-development of AAC audio coding standard, Fraunhofer IIS has reached worldwide recognition. In close cooperation with partners and clients the Institute provides research and development services in the following areas: Audio & Multimedia, Communications Systems, Energy Management, IC Design and Design Automation, Imaging System, Medical Technology, Non-destructive Testing, Positioning, Safety and Security Technology, Sensor Systems plus Supply Chain Management.

More than 830 employees conduct contract research for industry, the service sector and public authorities. Fraunhofer IIS with its headquarters in Erlangen, Germany, has further branches in Dresden, Fuerth, Nuremberg, Coburg, Deggendorf, Ilmenau, Wuerzburg, Bamberg and Waischenfeld. The budget of 108 million euros is mainly financed by projects. Less than 25 percent of the budget is subsidized by federal and state funds.

Detailed information on www.iis.fraunhofer.de/en.