FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

PRESS RELEASE

Energy-saving WakeUp-Receiver for the "Internet of Things"

Erlangen/Munich, Germany, November 3, 2014 – electronica, Hall A, Booth 113: The WakeUp-Receiver developed by the Fraunhofer Institute for Integrated Circuits IIS can continuously operate and receive wireless signals for years on a µ-Watt power source. The device, which functions without a microcontroller, boasts a fast response time of 32 ms and is suitable for around-the-clock monitoring of wireless sensor networks. Power can be supplied via energy harvesting technology.

The Fraunhofer WakeUp-Receiver technology significantly increases the operating life of wireless receiver systems. In terms of energy consumption and data rates, the device can be configured in a wide range, thus ensuring several years of battery operation or fully autonomous operation via energy harvesting.

The WakeUp-Receiver continuously monitors the wireless channel – without the use of a microcontroller – and recognizes two separate wake-up patterns. Apart from the pure WakeUp mode, coded data can also be received. Furthermore, a selective wake-up of certain wireless nodes can be performed, using a 16-bit address.

Millisecond response time

The current prototypes, which are based on 130 nm CMOS technology, operate in the 868 MHz and 2.4 GHz frequency bands and feature -80 dBm sensitivity. When operating in the standard configuration at a data rate of 1 kbit/s, energy consumption is reduced to a mere 3 µA with a response time of 32 ms.

2.4-GHz WakeUp-Receiver consumes 2 µA.
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Wide range of applications

The Fraunhofer WakeUp-Receiver technology represents a key technology for the "Internet of Things" and "Smart Object" environments. It offers utility across a wide range of applications including building automation, intelligent lighting, electronic labels, remote maintenance, remote control and wireless sensor networks.

The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 67 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of more than 23,000, who work with an annual research budget totaling 2 billion euros.

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.