



Technology Transfer Opportunity

Power Saving Enhanced IEEE 802.15.4 for Better Networking Performance

OPPORTUNITY:

The lifetime of battery powered wireless sensor devices is a significant factor in determining the running costs of large-scale environmental monitoring sensor networks. Battery powered wireless devices are typically deployed where wired infrastructure is unavailable. Each time data is transmitted the device consumes power from the battery. Extending wireless sensor battery life to beyond 5 years (in a typical application) will significantly reduce the total cost of ownership.

Description of Technology:

This technology implements an enhanced IEEE 802.15.4 Beacon-Enabled mode. The mode significantly reduces the power consumption of data transmission for low data rate applications. The enhanced mode enabled devices are backwards compatible and inter-operable with devices using the original standard.

The mode uses Synchronized Low Power Listening to reduce communication overhead and maintain clock synchronization in low rate applications. Periodic wakeup is used during the inactive period to adapt the network to traffic bursts. The technique improves energy efficiency, reduces data loss and achieves much shorter end-to-end delay in comparison to standard Beacon-Enabled mode.

Value Proposition:

For low data rate applications where wireless sensor lifetime is of critical importance, Enhanced IEEE 802.15.4 Beacon-Enabled mode offers ~50% lower power consumption, ~90% reduced data loss and a ~20% - ~90% reduction in duty cycle while being 100% compatible with existing IEEE 802.15.4 networks.

Market:

IEEE 802.15.4 is a low power wireless network standard that has been commercialised by the Zigbee Alliance. The Enhanced IEEE 802.15.4 Beacon-Enabled mode will be of interest to system implementers for Wireless Sensor Networks, Zigbee and 802.15.4.

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Status:

A patent applications have been filed in (app. no. S2009/0783).

Opportunity Sought:

Technology is available to license or alternatively we would be interested in partnering opportunities.

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