

Open Thesis / Project

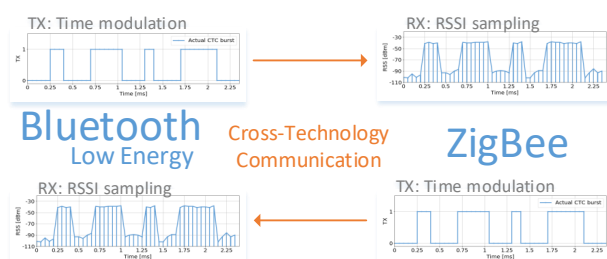
Bringing Cross-Technology Communication to the Zephyr OS

Motivation

Bluetooth Low Energy (BLE) and IEEE 802.15.4 are the two most widespread wireless technologies used for the Internet of Things. Due to the heterogeneity of those technologies it is not possible for co-existing IoT devices to communicate with each other or to share information.

In order to allow a communication between devices employing incompatible wireless technologies, a mechanism called *Cross-Technology Communication* (CTC) can be used which aims to use specific interference patterns to convey information between different wireless standards. We have developed a CTC scheme that allows a direct communication between BLE and IEEE 802.15.4 devices by encoding information into precisely timed energy bursts. The scheme was integrated into the open source operating system Contiki and runs on multiple platforms.

The aim of this thesis/project is to use the already existing Contiki implementation of our scheme and porting it to the new real time operating system *Zephyr*, which is officially supported by the Linux Foundation.



Thesis Type

Master Project / Master Thesis

Target Group

- Students of ICE / Telematics;
- Students of Computer Science;
- Students of Electrical Engineering.

Goals and Tasks

- Get familiar with the Zephyr OS;
- Seamless integration of our scheme into the Zephyr OS;
- Support for the nRF52 development kit;
- Analysis and evaluation of the performance of the integration.

Required Prior Knowledge

- Problem solving skills;
- Excellent programming skills;
- Interest in low level driver software;
- Knowledge of the Zephyr OS is a plus.

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