

Thesis
B.Sc.

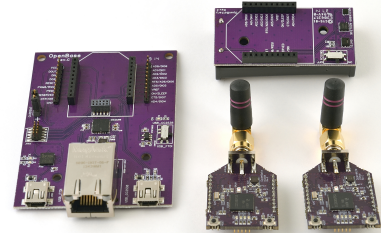
Thesis
M.Sc.

IDP, HiWi

Open-Source Cyber-Physical Network Infrastructure

Motivation

The increasing use of Cyber-Physical Networks in Internet-of-Things scenarios demands a reliable network infrastructure. To achieve this goal an open-source platform based on open standards is required. The upcoming 6TiSCH [1] standard tries to standardize the interaction between different nodes. We aim for an open-source platform that implements this 6TiSCH standard. This platform consisting of open-source hardware (OpenMote [2]) as well as open-source software should simplify the research in the area of cyber-physical networks. The software implementation could be based on OpenWSN [3], which implements the required network stacks. An important requirement for the 6TiSCH implementation is the CoAP protocol [4]. CoAP is an HTTP-like protocol targeted to embedded devices and used e. g. for the 6TiSCH configuration.



Your Task

- Setting up a development environment for OpenMote
 - Deploying OpenWSN and CoAP on the OpenMotes
 - Implementing a 6TiSCH-compatible network configuration interface
 - Implementing a sensor network demonstrator
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- C programming skills

Prerequisites

References

- [1] 6TiSCH: <https://datatracker.ietf.org/group/6tisch/documents/>
[2] OpenMote: <http://www.openmote.com/>
[3] OpenWSN: <https://openwsn.atlassian.net/wiki>
[4] CoAP: <https://tools.ietf.org/html/rfc7252>

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