Open-Source Cyber-Physical Network Infrastructure

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-phyical 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.

- 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

- C programming skills

References


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