Anbindung intelligenter Geräte mittels MQTT

Motivation

MQTT (Message Queuing Telemetry Transport) is a robust, lightweight messaging protocol for IoT devices that is increasingly used. The protocol allows loosely coupled "connections" of a large number of distributed sensors and thus enables central reactions to specific measurements.

Task

The main focus of the thesis can be directed into different directions (and some of them may be combined), e.g.:

- A review of different implementations of the MQTT stack (e.g., Mosquitto) with its advantages and disadvantages.
- Implementation of a prototype application (e.g., a chat) with a focus on security (i.e., authentication and authorization).
- Tests on the scalability of MQTT and a persistent layer (i.e., InfluxDB, a time series database).
- … (e.g., additional implementations on IoT devices; real-world tests)

Expected results

- The expected results depend on the direction of the thesis, but should at least lead to an in-depth documentation of the results and a working, evaluated prototype.

Title English

- Connecting smart devices with MQTT

Level: Bachelor's or Master's thesis

Methodology

- Programming, technical analysis

Special prerequisites

- Solid programming skills, Python and Linux skills

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