A simulator for virtual Internet of Things devices

Master thesis/Exjobb
Mobile Services Laboratory
Communication Systems

Task

Pursuing research into IoT devices naturally requires access to physical devices. However, many interactions in an IoT system take place in the electronic and information domain, and the effects (or more often, lack of effects) are not immediately visible to the human users. Partial breakdowns due to fading and noise in wireless networks, discharged batteries, or simple misunderstanding of what the device can do, are all confounding components in the effort to setup and maintain a working IoT home system.

The purpose of the degree project is to design and construct a simulation platform that allows for the rapid setup and simulation of numerous and different generic IoT devices. Simulated devices should be able to both successfully masquerade as physical devices in a real environment, and be able to participate in closed simulations.

A master thesis in this area may include the following:

- Find and evaluate previous and ongoing work in virtual device representations
- Acquire, design, and implement best practices for a virtual device simulator
- Evaluate the simulator in terms of interoperability with real devices and infrastructures
- Analyze the outcome of the evaluation and suggest further work.

Competence

We are looking for a motivated MSc student who has fulfilled the course requirements for the degree project. Good programming skills are required, as well as a good understanding of short-range wireless communication systems and protocols. A good grasp of English is highly valued.

Application

Applications should include a brief personal statement, CV, and a list of grades. In the application, make sure to mention previous activities or other projects that you consider relevant for the position. Candidates are encouraged to send in their application as soon as possible. Suitable applicants will be interviewed as applications are received.

Start time: spring 2017
Location: KTH, Kista, Stockholm

Mobile Service Laboratory

The Mobile Service Laboratory at the Department of Communication Systems' overall aim is to foster innovation, education and research in mobile services. The lab is pursuing the study, design, benchmarking, and evaluation of mobile applications and their associated services.

Active Browser

The Active Browser project explores user requirements for IoT in domestic environments.

Contact

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https://www.kth.se/en/ict/forskning/cos/research/mslab