Thesis Title: The OAuth 2.0 Authorization for the Internet of Things

Description of the units:
The Networked Embedded Systems (NES) group at SICS Swedish ICT is a part of the Computer Systems Laboratory. The current research focus is on the Internet of Things. Among the group’s key technologies are the Contiki operating system, uIP stack, ContikiRPL, SICSLoWPAN, SICS\textsuperscript{th}Sense, and lightweight implementation of IPsec and DTLS. The NES group conducts projects together with industry and academic partners from Sweden and across the world.

Thesis description:
Internet of Things (IoT) is the interconnection of everyday physical objects with the Internet. OAuth is an open standard for authorization. OAuth provides client applications a ‘secure delegated access’ to server resources on behalf of a resource owner. In order to solve authorization problem in the IoT, OAuth can be extended to the IoT domain. There are already some proposals on the use of OAuth in the IoT. We also see a great potential in OAuth to be used in IoT devices. This thesis aims to investigate the applicability of OAuth in the IoT domain, implement the proposed solution for IoT devices, and evaluate it in an IoT setup.

SICS will provide both background information, a certain amount of code libraries reflecting the current status of the research project, and necessary hardware. The tasks of the Masters student for this thesis are:

- Study IoT protocols and the OAuth 2.0.
- Propose a protocol-level solution showing the use of OAuth in the IoT.
- Implement and evaluate the proposed OAuth-based solution for the IoT.
- Document the results as a thesis document.

Competence:
We are looking for a bright MSc student with demonstrated interest in security who have fulfilled (or soon finishing) the course requirements. Good programming skills are required, as is good spoken and written English. Experience with the Bluetooth programming is a plus.

Applications should include a brief personal letter, CV, and recent grades. In your application, make sure to give examples of previous programming 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: As soon as possible
City: SICS Swedish ICT Kista, Stockholm

Contact person:
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