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Thesis Title: *Privacy in the Internet of Things (IoT)*

Personally Un-identifiable Authentication in the Cloud-connected IoT

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 wireless sensor networks systems and the Internet of Things. Among the group's key technologies are the Contiki operating system, uIP stack, ContikiRPL, SICSLoWPAN, SICSthSense, 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:

The Internet of things (IoT) is getting ready to transform the way we work and live; if one thing can prevent the IoT from transforming the way we live and work, it will be a breakdown in security and privacy. In computer security, there is a drift between authentication and privacy (revealing identity). The goal of this project is to develop a novel authentication scheme for the cloud-connected IoT that give us the best of authentication and privacy. This personally un-identifiable authentication will not reveal the identity of the users but at the same time make sure that a service is provided to the authenticated user. Once a solution is proposed the next task is to implement and evaluate in an IoT setup. SICS will provide the necessary hardware.

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

- Study the cloud-connected IoT architectures, and different authentication and privacy-preserving schemes in computer security.
- Implement and evaluate the relevant parts of the proposed framework.
- Document the results as a thesis document.

Competence:

We are looking for a bright MSc student who has fulfilled the course requirements. Good C programming skills are required, as is good spoken and written English. Experience with computer security is also needed.

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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