

Security Management (Access Control and Policy Enforcement) for Embedded Systems

Organization Description: Philips Research is the source of many advanced developments in Healthcare, Lifestyle and Technology. Building on 90 years' experience in industrial research and our world-leading patent position, we're dedicated to meaningful innovations. In the healthcare domain, we are enhancing imaging and monitoring systems, as well as exploring innovative personal healthcare. In lifestyle, we're helping people see, hear, remember and share content, anywhere and anytime. Our vision focuses on simplicity, making technology an integral – but invisible – part of everyday life.

Background: In the coming years, embedded control systems are going to evolve regarding their needs and capabilities. Recent advances in LED luminaries are leading to highly configurable lighting systems comprising a higher number of light sources. The advances in wireless communication have already revolutionized the way embedded devices communicate with each other. They are not only locally controlled, but also from the backend. Security is an important aspect to ensure the operation and management of a network consisting of embedded devices with low computational capability and limited resources. The ability to enforce fine-grained access control in the device is required to ensure that system parameters, device's behavioral pattern, firmware, etc can only be managed/configured by the authorized entity (either locally or controlled from the backend).

Tasks: During your internship (or Master Thesis), you will be involved in a team doing research on security technologies for embedded systems. You will collaborate in the design, implementation, and analysis of a new access control engine for small devices. This internship will allow you not only to learn better existing security technologies, but also to explore other research areas related to embedded systems.

Your profile:

- Knowledge of computer science/mathematics, security protocols, cryptographic algorithms, access control technologies.
- Experience in C and embedded system programming (Contiki, TinyOS or ARM SDK) is essential and at least one of the following programming languages: C++/ C#/Java.
- Fluent English in speaking and writing.
- Initiative, creativity, analytical skills, organized, and task-oriented.

When you apply to this assignment we require a short motivation letter, CV and grade list.

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