Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Distributed Computing

Prof. R. Wattenhofer

BA/MA/SA/Group/Lab:

Convenient Smartphone Authentication

Not too long ago, computers were mostly stationary devices. With the introduction of cheap laptops and smartphones, this has changed radically. Nowadays, we have our email, calendar, photos, and work documents with us at all times. This introduces new risks as it is much easier for a device to be lost or stolen. What happens then? or if somebody steals it? Is you data secure or would you be in deep trouble? Different solutions have been presented to address this problem. There are passwords and pin codes that help protect your data, but entering these tokens in your device every time you want to use it is a tedious task. There are also less obtrusive solutions like face recognition and Apple's Touch ID but these solutions have proven little effective against simple forgery attacks.

The existing solutions are unacceptably bad in one or another way. With the introduction of Bluetooth 4.0, it has become possible to have very small devices able to run a year off a single coin-cell battery. We would like to leverage this new technology to create a novel authentication system that is able to address the problems of previous approaches. The goal of this thesis is to build a device that allows to unlock an android smartphone in a convenient manner. The focus lies on energy efficiency and size but also on the choice and optimization of the cryptographic methods used in the authentication algorithm. In addition to the prototype, an Android companion app has to be implemented.

Requirements: Good programming skills and creativity are advantageous. Experience in building hardware prototypes is advantageous.

Interested? Please contact us for more details!

Contacts

- Pascal Bissig: pascal.bissig@tik.ee.ethz.ch, ETZ G61.3
- Klaus-Tycho Förster : klaus-tycho.foerster@tik.ee.ethz.ch, ETZ G61.3