

Master Thesis in Cooperation with Bosch: Security Maintenance Costs for IoT Products

The Bosch IoT Lab is currently looking for students who want to write their master thesis at the Institute of Technology Management in cooperation with Bosch

On the way to become a leading IoT company, the Bosch group faces several challenges while connecting physical tangible goods to the Internet, e.g., cars, home appliances or manufacturing machines: The expected lifetime of such physical goods is often quite long. During this period, the physical goods must be protected against cyber-attacks. Therefore, the software running on the physical goods as well as the respective ecosystem must be regularly maintained. This includes for instance backend servers and mobile apps. Security patches must be regularly developed, tested and deployed. The effort and the Total Cost of Ownership (TCO) required to ensure the security of such IoT products during the whole lifecycle may easily exceed the respective expected revenue.

Goal

In this master thesis, the organizational and technical parameters of the maintenance effort required during the overall lifecycle of the IoT products shall be identified and orchestrated into a framework to improve the predictability of the maintenance costs.

Some of these parameters are, e.g.,

1. Technical setup of the product (e.g., hardware, operating system) and its ecosystem
2. Number of product variants to be maintained in parallel by a development team
3. Expected number of products in the field (potentially with different variants, or different versions to be supported in parallel)

Approach

In the master thesis, an IoT product from a Bosch Division can be used to develop the framework. The results of the analysis might be used to provide a generalization for other Bosch products. Moreover, a market analysis with regard to software maintenance for IoT products may provide input to the generalization.

Your profile

- Student with background in management or management & technology
- Basic knowhow in programming languages
- Interest in cyber security and the impact of cyber security in IoT products
- Analytical thinking and a structured working approach

Whom to contact?

To apply for this topic, please send an email to Fabian Schaefer <fabian.schaefer@unisg.ch> and attach your current CV, transcripts and mention your preferred starting date.