
Open Thesis / Project

ANITAS

Advanced NFC Interoperability Test Automation System

Motivation

Near-Field Communication (NFC) can be found in a wide range of applications like access control, payment, public transport, face collection, smart poster and many more. In the framework of the ANITAS project we focus on the payment application, especially on interoperability testing. Spying the NFC communication with a sniffer coil and measuring the induced voltage with an analog measurement device are the main tasks. The analog data will be analyzed to find the error root cause. The goal of the ANITAS project is to improve the interoperability test methodology.

Following important goals were already achieved:

- Development of a configurable test device.
- Implementation of the first features on a Software Define Radio (SDR) platform used as sniffing device.
- Integration of the SDR to the automated interoperability test system at CISC.
- Implementation of the first signal processing features in MATLAB

To further improve the automated interoperability test system and to achieve the ANITAS project goals following interesting tasks are still open.

Thesis Type

- Bachelor Thesis
- Master Project
- Master Thesis

Target Group

- Students of ICE/Telematics;
- Students of Computer Science;

Project Ideas

- **Database:** Test results gathered from the sniffing device need to be stored.
- **Test Report:** Improve automated generated test report (Latex environment).
- **GUI:** Implement a graphical user interface for manual signal trace analysis.
- **Signal Processing:** Implement signal processing algorithms to analyze the captured signal traces.
- **FPGA:** Implement additional features for the FPGA on the LimeSDR.
- **Testing:** Perform characterization measurements and analyze large amount of test data.

Required Prior Knowledge

- Problem solving skills;
- Interest in NFC technology;
- Team working skills;

Learning Objectives

- Get familiar with the NFC technology.
- Improve your programming skills.
- Work with version control system within a project team.

Cooperation Partner

This thesis is part of the ANITAS project which is a cooperation between TU Graz, CISC Semiconductor and NXP Semiconductors.

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