

# Operation Dependent Electromagnetic Emanation

## Motivation

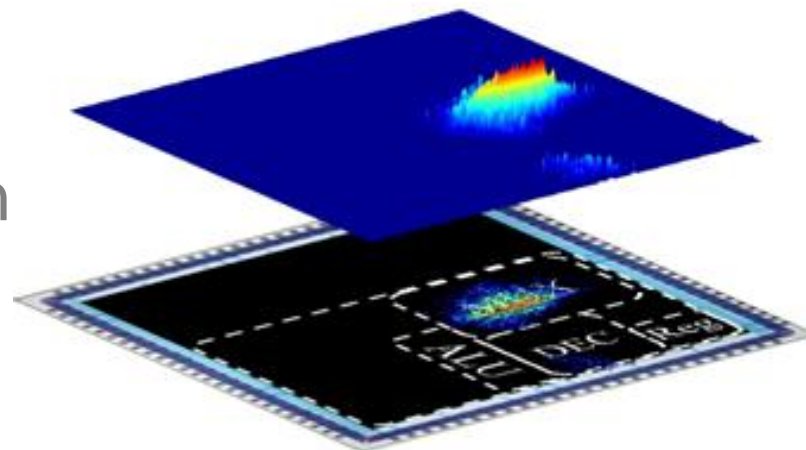
The so-called “surface scan method” can be used to determine the electromagnetic compatibility of a device: during the operation of a device (e.g. smart phone) the amount of electromagnetic emanation is measured.

In this project, we want to find out if the program/operation executed on a device significantly influences the EM emanation. In other words: is it possible to determine what the device does by analyzing EM measurements?

In this project a 3D-motor stepper setup controlled via MATLAB and a digital oscilloscope is used to create emanation images of various devices (e.g. different microcontrollers).

## Project description

- Goals
  - Characterize the EM emanation of one or more devices
  - Draw conclusions about the executed program/operation based on EM images
- Tasks
  - Get familiar with the IAIK MATLAB toolbox, the 3D motor stepper, and the oscilloscope
  - Perform measurements of different programs on different devices



## Deliverables

- Project files (.zip, cleaned)
- Documentation (paper)
- Presentation (10 .ppt slides)

## Project schedule

- Start Immediately or in autumn
- Block 1 Get familiar with the MATLAB toolbox and the motor stepper
- Block 2 Perform measurements on different devices and/or different implementations

## Bachelor Project

Studies:  INF  SEW  TEL

## Prerequisites

- One or more of the following: MATLAB, oscilloscopes, C/C++, Assembly

## Advisor / contact

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