

## Bachelor's Thesis

# Simulation of energy harvesting with Cross-Technology Communication

## Abstract

Wireless devices often require usage of batteries to supply energy to the device. However, with energy harvesting devices are capable to extract energy from the radio waves around them, while other devices can support them by transmitting energy to them. The nodes might be selective on how many energy they can extract depending on the spectrum of the send signal. With Cross-Technology-Communication (CTC) signals can be emulated by a WiFi device. This can also be used to transmit energy to an energy harvesting device more efficient.

## Content

The aim of this thesis is the creation of an energy harvester in a simulation e.g. MATLAB. With the help of this model the selectivity of the energy harvester shall be studied in this thesis. Based on the outcomes an emulated waveform with CTC shall be developed. This thesis includes also an evaluation on how much energy a harvester can extract in case a better fitting CTC waveform is used.

## Requirements

\* Interests in simulations \* Interests in signal processing \* interests in learn programming with MATLAB