

Bachelor's Thesis

Study of channel dependent FTM behavior

Abstract

Indoor localization is a key factor in environments where traditional localization techniques like GPS are not available. An important factor is FTM, a ranging technique for WiFi. With triangulation, its ranging data can be used for localization. FTM, however, works good in free field conditions but can be affected by multi-path propagation, for which indoor scenarios are prone to. Multi-path propagation is location dependent and can not be solved by repeated measurements under the same conditions. That is why we used measurements on different channels in a previous work. Those measurements highlight that hardware has a huge influence on the measured FTM on different channels.

Content

The aim of this thesis is to study the channel behavior of different FTM hardware.

Therefore, FTM measurements on different WiFi channels (center frequencies) on different channel characteristics shall be done.

Additionally, different FTM hardware shall be used for the measurements.

This thesis shall include an evaluation of the measurements and analysis how different WiFi channels can be used for FTM measurements and how fusion of these measurements can be done.

Requirements

- * Interests in WiFi and ranging
- * Interests in programming (Linux, esp32)
- * Interests in data analysis and statistics
- * Interests in experimental work
- * Scientific work