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Bachelor's Thesis

Experimental evaluation Bluetooth Low Energy phase based ranging

Abstract

Indoor localization becomes important when no traditional techniques like satellite based GNSS are not available due to shadowing or missing communication links.

While first methods work on time of arrive or angle of arrive analysis, these methods require either good estimation of the channel or high precessional timestamps.

Bluetooth Low Energy (BLE) standardize a technique called phase-based-ranging (PBR) allowing high precision narrow-band indoor localization.

However, practical evaluation is missing so far.

Content

In this thesis you can BLE-PBR evaluation boards to run ranging measurements.

Therefore, you have to program a data collection chain and plan a measurement campaign in interesting environments as well as define important parameters

Requirements

* Interests experimental work

* Interests in learning signal processing

* Interests in micro-controller programming: C, C++, Python

* Interests in statistics

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