

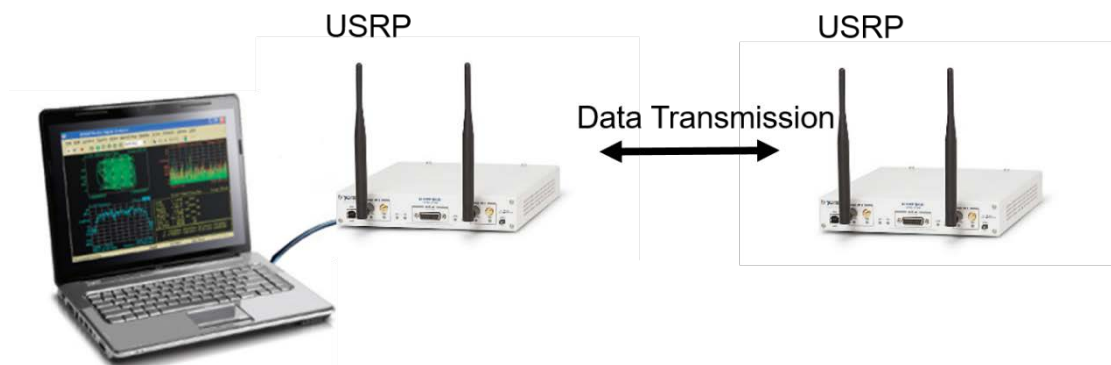
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Topic:

Analysis of a communication system using SDR (Software Defined Radio) and GNU Radio

Motivation:

Most current broadband wireless standards are based on Orthogonal Frequency Division Multiplexing (OFDM). Besides the existing systems using OFDM, there is an active research on future systems, enhancing the existing standards to improve system performance. The investigation and assessment of information theoretic concepts for wireless resource management of those new systems in real-world scenarios requires flexible testbeds with a wide range of reconfigurable parameters. This functionality is currently offered in Software Defined Radio (SDR) technology.



Task: **Setup of the framework and evaluation of data transmission**

Setup of the framework by the communication of the USRPs (Universal Software Radio Peripheral) using GNU Radio Software (an open source, free software toolkit for building SDRs that works in Python). Preparation of a channel for data transmission between the USRPs using GNU Radio Software. Evaluation of the system performance of the given SDR framework in simulation and RF transmission conditions. Analytical results for system performance will be compared to results for real-time transmission.

Start: 07/2018

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