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**Project Work, Bachelor**  
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## **Design and Realization of a Wireless Distribution System Test Setup for Measuring Throughput and Capacity in WLAN Networks**

### **Abstract**

This project work contributes to the LANGE project. The Lange project is a project of the University of Applied Sciences in Kuopio. The purpose is to improve the time synchronization between sensor networks.

The project includes the measurement of capacity and throughput of access points and router. The first test setup includes measurements with one access point. For the following experiments a router with two operating frequencies is necessary. After choosing the perfect router for the next tests the ideal design and realization of the wireless distribution system (WDS) was prepared. The test setups show the difference between wired and wireless connection. They also show the throughput and the capacity of the WDS. The WDS connection is tested between two routers and between three routers as well.

These test setups show results about the stabilization and capacity of the WDS. These results are important for the LANGE project and can be used for following tests as well.

**Examiner: Prof. Dr.-Ing. Uwe Meier**