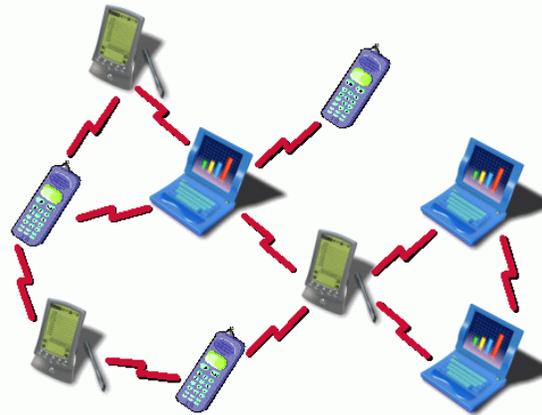


Bachelor/Master Thesis

User Preference Eliciting and Analysis in Multihop Wireless Networks

Advances in electronics and signal processing have triggered the telecommunications industry to flood the market with high technological mobile devices, e.g., smart phones and tablets. These devices are capable of running many emerging real time services such as live video streaming, interactive gaming and video conferencing. These services are usually delivered by cellular networks which rely on a fixed infrastructure.

Due to the limitations in the frequency bandwidth and the coverage area of the existing infrastructure-based networks, there are many situations where network connections or some network services cannot be provided. To this end, infrastructure-less based wireless networks known as Ad Hoc networks are of great interest. In Ad Hoc networks, users who do not have a direct radio link can communicate only by the help of the other users in the network. This means that users who are in between the



communication parties should receive and forward the data originated by the source till it reaches the destination.

Certainly, the communications in an Ad Hoc network depends on the willingness of the intermediate users to relay the data or not. Relaying the data by an intermediate user will

- consume part of the battery energy,
- use part of the local memory,
- encounter some local processing and
- use part of the bandwidth reserved for this relaying user.

The aim of this thesis is to provide a better understanding about prospective users' willingness to forward messages in such Ad Hoc networks. For this purpose the candidate has to

conduct a Choice-Based-Conjoint (CBC) analysis where the willingness to forward and thus the costs are traded off against some benefits that such Ad Hoc networks can deliver. CBC is a statistical technique that originated in mathematical psychology and is often applied in survey research.

The candidate has to create a questionnaire including choice sets that reflect different scenarios. Standard software for creating efficient CBC designs and for putting the questionnaire online is available. In a second step about 120 subjects have to answer the questionnaire (the supervisors can provide help to get access to an adequate sample) and finally the candidate has to analyze the data and derive meaningful implications for the design of Ad Hoc Wireless networks.

The thesis is jointly supervised by Prof. Anja Klein (FB18) and Prof. Dr. Oliver Hinz (FB01).

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