Diploma/Master’s Thesis “Data Gathering in Wireless Sensor Networks”

Among others, environmental monitoring is one of the most promising applications for sensor networks. Sensor nodes thereby observe real-world phenomena such as temperature, humidity, or seismic activity and send the corresponding record data to a central base station for further analysis. This probing is often done periodically.

Since individual sensor nodes are battery powered such a data gathering algorithm, conveying data messages towards the base station, must be very energy efficient to prolong network lifetime. We have already developed and implemented a prototype of such a data gathering algorithm in our group.

Based on this prototype, we will design and implement new features for this data gathering algorithm. Important issues are robustness, load balancing, and further energy savings of the algorithm. The goal of this thesis is to develop a ready-to-use data gathering algorithm for an existing sensor node platform. Thus, the thesis also comprises testing and performance measurement of the implemented protocol.

Required
- Advanced programming skills
- Basic C knowledge
- Interest in working with an embedded platform

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