



Semester thesis:

A Wireless General-Purpose Distance Sensor

The ubiquity of mobile phones makes them very attractive as a mobile sensing platform. New generation mobile phones like the iPhone or Android-based phones already have some integrated sensors (GPS, accelerometer). Additional external sensors, e.g. for temperature, air pollution or heart rate, can sense a persons environment. Measurement data can then be sent to the mobile phone where it is further processed by an application or forwarded to a central server using the mobile phones Internet connection. At our lab, we developed different external sensors that can connect to Android phones.

The goal of this project is to design and build a small wireless sensing platform that can measure the distance to objects in front of it and send it to an according Android application. The application should be able to handle multiple sensors and visualize the current measurements graphically. In order to maximize the battery-lifetime, the sensors need to be built in a way that they consume as little energy as possible. An example of such an application could be a parking assistant for cars, where the sensor is mounted in a garage and the person in the car can use the smartphone to measure the distance of the car and the wall.



Requirements: Experience in building hardware, Good programming skills (preferably in Java and C). The student(s) should be able to work independently on the topic.

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