

Rika Project

« Implementing Wireless Information Signs for Indoor Navigation »

Goal of the project

The goal of the proposed project is to develop a system for indoor navigation. The user enters a point of interest in his mobile device via a menu structure and is navigated to his destination. The navigation is meant to be a simple binary decision whether the user moves in the wrong or right direction. This information is displayed on a screen on the mobile device. If the user decides to enter a different destination, the system adapts to the new input. The system informs the user when he reaches his destination.

The system consists of a PC and a wireless network. These two parts are connected via a gateway module. There are two different roles in the network. Basestations wirelessly transmit information about their location and nearby points of interest and act as displayless information signs. Mobile Devices use the information provided by the information signs to determine if the user is heading in the right direction.

Because the information provided by the basestations cannot be known automatically and can vary over time, an administrator will have to configure the information signs using a graphical user interface on a stationary computer. Besides configuring the basestations, the program displays the current position of the user graphically on a map of the building.

Work description

The mobile devices and the information signs are based on the Crossbow IRIS wireless sensor node. They are programmed using TinyOS. The program to configure the information signs and to display the user's position is programmed in Java.

The students carrying out this project have to develop the software for the described system. This includes

- Navigation sign software for the basestations.
- Graphical user interface and navigation module for the mobile devices
- PC-based GUI program allowing for configuration of the basestations and display the user's position

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