

Project Work

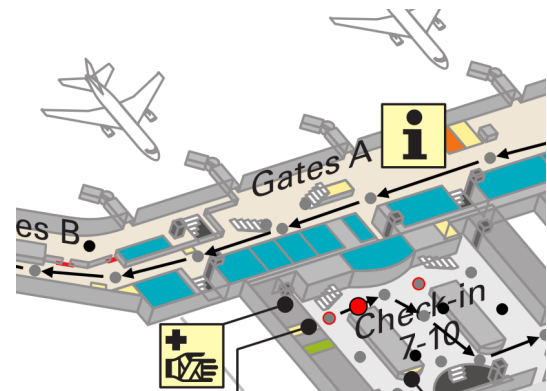
« Integrating Indoor Positions Into Android »

Background

Navigation devices and smartphones which rely on GPS signals have found their way into our daily lives already some time ago. However, inside buildings these technical helper do not work properly. There is a lot of research going on trying to provide reliable indoor positions. But still it cannot be foreseen which technology will be able to provide this service nor when it might be available.

Nevertheless, in the Institute of Telematics there is already research going on to provide indoor navigation for smartphones. Emphasis is put on how maps may look like, how routing technologies can be used, and how these components can be combined into a smartphone application to be used by consumers.

Furthermore, a system was designed and built which allows to locate persons using dedicated hardware. There is also a Bluetooth adapter which allows to determine its own position within the system and to forward this position using a Bluetooth connection.



Work description

The goal of this work is to develop and evaluate possibilities how to integrate position data into the Android operating system. On the one hand, data from the Bluetooth adapter is to be tunneled into the system. On the other hand, for testing purposes it is required to simulate arbitrary positions and movements.

In a first step, existing research needs to be analyzed. There are already technologies and methods available to receive position data from the Bluetooth adapter by Android, as well as injecting it into the Android system in order to be used by any application. There is also an application available which displays an indoor map which allow navigation based on SVG.

Research needs to be undertaken to combine the relative SVG coordinates which are used for displaying the current position on the SVG with the real-world coordinates provided by the operating system. Furthermore, required research includes examining how to provide, store, and replay simulated positions and movements.

Requirements

Knowledge of Java and optionally SVG

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