Bachelor's Thesis

Geo-localization and routing in complex multi-floor environments
Efficient path mapping and safety cultivation

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Abstract

The aim of this project is to realize a mobile application for patients of the hospital CHC Saint-Jean in Liege that will enable them to register, view appointments and find their way in the hospital. First the existing application for consulting scheduled appointments and registration is reworked to a native iOS mobile application (mobile app in short). This feature is extended with the option to view the information of the hospital and set reminders for any appointment in the near future. Second an indoor location framework is added to the reworked mobile app that shows the route to the place of appointment. After implementing the geolocation and routing, an optimization method is implemented: the ant colony optimization algorithm. The ant colony algorithm determines the shortest path to the place of appointment based on some factors such are: amount of visitors in some corridors and hallways and the amount of stairs a patient has to climb (a patient's mobility). Using the mobile app the hospital can improve their safety procedures by notifying users of the application of any problems in the hospital, these problems can be but are not limited to: fire, malfunctioning of the elevator and electrical outage.

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references