SOCS Wayfinder: Using a Low Cost Solution for Geolocation and Pathfinding Indoors

Abstract

Navigation indoors can be difficult, especially for visitors or newcomers in public institutions such as university buildings, hospitals, and airports. Although many solutions exist for outdoor geolocation and wayfinding, through Global Position Systems (GPS), a similar standard doesn’t exist for indoor navigation. The SOCS Wayfinder platform establishes a novel low cost solution for indoor navigation using Near Field Communication (NFC) Stickers and an Android application.
SOCS Wayfinder facilitates navigation inside the McConnell building to posters located at key locations. Once a user enters the building, they can download the application at any poster. Afterwards, the user chooses from popular points of interest such as bathrooms, lecture halls, and administrative offices and the application calculates the optimal route. A detailed map shows the blueprints of the building with all points of interests and adjacent buildings marked. Differently abled users can select a route and destinations with handicap access, as well as high contrast colours and patterns for the map. Should a user stray from the optimal route, a new route is recalculated immediately.

Quick user surveys and tracking of any individual scan assists in gathering valuable data for not only improvement of software, but also as a tool to improve building infrastructure. All of the features in this paper have been carefully implemented and tested with students, staff, and visitors.

References

Index Terms

Computer Science

Information Sciences

Keywords

NFC Stickers, Geolocation, Wayfinding, Pathfinding