DESIGN SCIENCES | FACULTY OF ENGINEERING, LTH | DAY OF PRESENTATION 2016-06-14

THESIS WORK Location based functionality in public transport applications
Implementation and evaluation from a user perspective
STUDENT Jacob Arvidsson and Jonathan Vidmar
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Context based user interaction is the future of public transportation

POPULAR SCIENCE ARTICLE **Jacob Arvidsson and Jonathan Vidmar**

Retrieving the correct information at the right time is crucial for the millions of people traveling by public transport every day, but is not something which is done easily in today's systems. This thesis work proposes the use of location based functionality to simplify the interaction with these systems to provide a better and faster user experience.

Imagine walking into a train station. You know you recently downloaded the local transportation company's application. You pull up your phone, search through the application list and finally find it. You have to search for your trip, buy the ticket, find the track, validate the ticket, board the train, show the ticket again to the controller and finally jump off the train at the right station.

All the functionality previously mentioned are provided to an extent by current solutions. But wouldn't it be nice if the application knew what you wanted, rather than you having to search for it every time? Well that's exactly what we thought as well.

We used small devices, called beacons, to send out Bluetooth signals at stations and transport vehicles. When the traveler's smart phone receives a signal, the application provides information based on the location of that beacon. At a station this information could be timetables and facilities and tracks around you. When on board a train the information could be upcoming stations, time until arrival and important messages and updates about the trip.

In addition to this we also suggest the use of a notification as a means of quick access to relevant information and functionality depending on your location. You are only one click away from being able to buy a ticket when on a station, or showing the ticket to the controller when on board a train. Appropriate functionality for each situation.

The thesis work also included new and innovative ways of validating tickets. By moving the act of validation from a physical ticket into the computer in your pocket that is your smart phone, we allow travelers to travel with style in this new digital era. We propose two different types of interaction, one being manual where a traveler opens the gate by simply clicking a notification when approaching a validation point. The other solution is fully automatic and only requires a traveler to carry a smart phone with him or her, letting the application do the rest.

To evaluate the functionality usability tests were performed, with results showing users are positive to new location based functionality and ready for smarter travel applications. In conclusion, implement beacons into public transport applications, travelers will love it!

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