Opportunities of Public Transport Experience Enhancements with Mobile Services and Urban Screens

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ABSTRACT

Public transportation is an environment with great potential for applying innovative ubiquitous computing services to enhance user experiences. This paper provides the underpinning rationale for research that will be looking at how real-time passenger information system deployed by transit authorities can provide a core platform to improve commuters’ user experiences during all stages of their journey. The proposal builds on this platform to inform the design and development of innovative social media, mobile computing and geospatial information applications, with the hope to create fun and meaningful experiences for passengers during their everyday travel. Furthermore, we present the findings of our pilot study that aims to offer a better understanding of passengers’ activities and social interactions during their daily commute.

Keywords: Design Intervention, Experience Design, Funology, Human-Computer Interaction, Mobile Technologies, Passenger Experience, Public Transport, Ubiquitous Computing, Urban Informatics

INTRODUCTION

Public transport infrastructure represents a unique urban space in the sense that citizens with diverse socio-economic backgrounds come together for extended periods of time at regular intervals, with usually little environmental stimulation. A passenger sitting on a vehicle is an ideal candidate to be entertained or informed about not only the next stop and the facilities available nearby such as commercial organisations or public service facilities, but also about the people sitting next to them. In addition, daily commuters are a congregation of local experts. How can this crowd be sourced in this situation of their daily commute and in meaningful and mutually beneficial ways?

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Public transport is thus an environment with great potential for the application of context-aware services through the use of mobile services and urban screens. This paper is looking at how the new real-time passenger information system being deployed by the TransLink Transit Authority across all of South East Queensland in Australia can provide a core platform to improve commuter’s experiences. This system relies on mobile computing and GPS technology to provide accurate telemetry on the location of transport vehicles, and it is this platform that our study intends to build upon.

The quality and excellence of a telemetric system contributes significantly to the user experience of public transport. However, the accessibility of real-time information of bus, train and ferry locations is only a necessary first step which other ideas can build on and add further value. We will conduct applied research and development of human-computer interaction and user experience design in urban environments. It focuses on mobile applications, urban screens, web systems, and locative media as communication devices to support the exchange of real-time information. At the moment, commuting is a socially isolating experience. However, it bears great potential as a platform for fostering social connections because of the confined space that people travel in. The primary goal of this research is to explore innovative design solutions that take advantage of the telematics infrastructure currently being tested and deployed by our partner TransLink in order to provide value-added services and enhance the experience of public transport users.

The specific aims of our study are to:

1. Identify new opportunities that arise from connecting data made available by real-time passenger information systems with social media applications.
2. Inform the design and development of multi-platform prototypes that are deployed across mobile devices, urban screens, and web applications.
3. Evaluate these prototypes in the field according to criteria of usability, usefulness and experience.
4. Understand the balance between the opportunities of these interactive services and locative media on the one hand and issues of identity, trust and privacy on the other.
5. Explore and assess the implications of deploying these technologies for the development of an integrated public transport infrastructure that meets the demands of a rapidly growing urban population.

TRENDS IN PUBLIC TRANSPORT

South East Queensland (SEQ) is Australia’s fastest growing metropolitan region. From 2006 to 2031, its population is expected to grow from 2.8 million to 4.4 million people (Queensland Government, 2005). The SEQ region includes land covered by 11 city and regional local governments. SEQ’s population is heavily urbanised and is generally concentrated in Brisbane and Toowoomba and at the Gold and Sunshine Coasts. By 2031, an additional 754,000 dwellings will be required, as well as supporting infrastructure and services. This will impose significant social, economic and environmental pressures on the region. Although most discussions in this paper are presented in the context of SEQ, it is relevant to many other regions in the world that are facing the same urbanisation trend.

Urbanisation also accelerates the growth of private car use in densely populated regions. Private cars will continue to be used into the future for the majority of trips in urban areas. However, with oil supply vulnerability, dependency on cars will cause financial stress to urban-fringe communities and vulnerable groups.

It is therefore important to highlight public transport as a more sustainable transportation alternative, which must be made more viable and attractive. In recognition of this need, our partner TransLink and the state government have improved and will further improve the public transport infrastructure and services.
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