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Integrating The Student ID Card with the Ticketing System

MID TERM REPORT

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1 Introduction

Information and Communications Technology (ICT) has over the past decades added value to many areas of human life let alone public transport systems. Ticketing is one aspect of public transport that is continually embracing the promises of ICT. According to an April 2007 position paper of the International Association of Public Transport (UITP), "high investments are being made for the implementation of electronic ticketing projects with the goal to contribute to customer convenience and efficiency of public transport operations." The paper goes on to suggest that *technical interoperability* and *organizational cooperation* should be established in order to make effective use of developments in ICT and serve the customer better.

This report concerns the integration of the student ID card with the public transport ticketing system with the aim of making student travel within the city of Oslo, with respect to purchase of student tickets, more convenient. The nature of the project demands technical interoperability as well as organization cooperation between public transport providers on one hand and the university on the other hand.

The main aim of this project is to develop and evaluate a prototype that will serve to test the viability of such integration.

The report has four main parts. First a brief background of the project is presented. Next the issue of understanding use and users of the system is discussed touching on relevant literature. This is followed by a discussion of the prototype design process which is itself followed by a look at the evaluation process.

2 Background

2.1 Problem Space

Trafikanten and other transport providers in the Oslo offer various kinds of tickets for travel by bus or tram within the city of Oslo.

This project, however, focuses on the student ticket which is a monthly ticket that allows a student travel at a subsidized rate.

A brief analysis of the current student ticketing system has revealed a number of problems which this project seeks to address. These include:

- *Long waiting times when purchasing a student ticket*: on average one has to wait about 5 minutes before being attended to. The situation gets worse at the end of the month.
- *Availability of Student Tickets*: student tickets are not as ubiquitously available as Hour Tickets. This means one has to find a point where student tickets are sold and in most cases involves travelling.
- *Undue Penalties Resulting from Forgetting*: it has been observed that one can easily forget his/her ticket home or forget to activate his/her ticket (by having it stamped) before boarding a bus or tram. In such a case Traffic Inspectors will deem a person to be a cheat and that a person is liable to pay a penalty.
- *Mismatch between Student Time Constraints and Time Required to Purchase a Ticket*: students are probably the most time-constrained people around but when you look at the time taken waiting on a queue to purchase a ticket plus the time taken travelling to and from the Ticket Purchase point (e.g. Trafikanten) one sees a mismatch.

2.2 Proposed Solution

As a way of getting around some of the problems and bringing convenience to the student customer, integrating the student ID card with the public transport ticketing system in Oslo was put forward as a possible solution. This will then enable students to use their student ID cards as "renewable" tickets where purchase of validity days is done via the internet thereby eliminating the need to travel to a selling point of student tickets, as is the case currently.

An assumption that students have access to the internet was made. Be it on campus, in their homes or better yet on their mobile phones.

The proposed solution shall take advantage of on-line payments using credit cards and/or internet banking. It is assumed that students are familiar with these modes of payment and in most cases a preferable means of payment for most customers.

3 Understanding Use and Users

Use of any system cannot be separated from users. In fact users often find systems that have been designed without taking into account user capabilities frustrating and difficult to use.

"Designing usable interactive products requires considering who is going to be using them, how they are going to be used, and where they are going to be used." (Sharp, Rogers, Preece, 2007 p. 5).

3.1 Data Collection Methods

There are several methods for data collection with respect to an interaction design process that can be used to gain an understanding of use and users of an interactive product. These include:

3.1.1 Interviews

Often interviews are the main data collecting technique in an interaction design process. Interviews can be:

- Unstructured
- Structured
- Semi Structured

3.1.2 Observations

Just like interviews, observations come in different flavours. Choice can be made from:

- Direct observation in the field
- Direct observation in a controlled environment
- Indirect observation

3.1.3 Questionnaires

Questionnaires mainly differ in mode of administration. There are now two extremes:

- On-line Questionnaire: where respondents simply complete and submit an on-line form.
- Paper-based Questionnaire: the traditional questionnaire where respondents are handed a printed questionnaire to be completed.

3.1.4 Documentation Review

In this case relevant documentation, if any, regarding the system the system or its environment is studied.

3.2 Methods Chosen for the Project

3.2.1 Semi Structured Interviews

Interviews are almost indispensable to any design process, not to mention interaction design. This is because systems are used by people and those people have expectations that need to be obtained or explained. We have however chosen semi-structured interviews because they give some amount of control in the interview process and its outcome while at the same time guaranteeing richness in the information collected. Control is needed because there is limited time for this project.

3.2.2 Observations

Field observations will be done in order to appreciate, first hand, the extent of problems described in the current system. Controlled environment observations will be done with respect to the prototype and its evaluation.

3.2.3 Documentation Review

Central to this project is the student ID card. A thorough understanding of the student ID card can be gotten by reading relevant documentation in addition to interviews of relevant authorities.

3.3 Data Collection Activity Schedule

The data collections have been spread as indicated in the table below:

Method	**Time**
Interviews	
1. Student Card production office	October Week Three
2. Sample Student Ticket users	October Week Three/November Week One
Documentation Review	October Week Three
Observation	
1. Field Observation I	October Week Four
2. Field Observation II	November Week Two
3. Controlled Observation	November Week Three/Four

Table 1: data collection activity schedule

4 Prototyping and Design

”It is often said that users can't tell you what they want, but when they see something and get to use it, they soon know what they don't want” (Rogers, Sharp and Preece, 2007, p.530). After collecting information about work and everyday practices from some students, the Trafikanten and student card production office, we will try out our ideas by building a web-based prototype for demonstrating the intended behaviour and testing the user usability.

4.1 Use of the prototype

The web-based prototype will be used to as communication device between the two team members of this project and the intended users who are students of University of Oslo. It will also be used to evaluate the user needs of the system and get feedback from the intended users on what they want and what they do not. The main emphasis will be on the usability testing.

The proposed web-based prototype will demonstrate the following tasks:

- registration process as a way of opening account with the Trafikanten where the currency is days not Kroner
- purchasing days of validity (topping up card) which involves purchasing the number of days a student can use his/her card as a ticket.
- checking ones account status which involves the student logging on the system and being provided up to date information regarding his/her account.

Apart from the tasks, the prototype will also demonstrate on how the user interface will look like and type of information to be provided to the intended users of the system.

4.2 Low-fidelity prototype

The prototype will use simple technology which does not look very much like the final product. This approach is described as the low-fidelity prototyping by Rogers, Sharp and Preece (2007, p.531). We have chosen this approach because the prototype tends to be simple, cheap, and quick to produce which means that it is also simple, cheap, and quick to modify so it supports the exploration of alternative design and ideas (Rogers, Sharp and Preece, 2007, p.531). The prototype will have all necessary functions but with little details.

5 Evaluation

”... running effective evaluations involves understanding not only why evaluation is important but also what aspects to evaluate, where evaluation should take place, and when to evaluate” (Rogers, Sharp and Preece, 2007, p.586).

5.1 Aim of the evaluation

The main aim of evaluation of our prototype is to check that the intended users will use the proposed system and they will like it. ”Furthermore, nowadays users look for much more than just a usable system, they look for a pleasing and engaging experience” (Rogers, Sharp and Preece, 2007, p.586).

5.2 Where to evaluate the prototype

Since the prototype is the web-based, it will be evaluated in the laboratory settings. It will be easier for us to control the evaluation process and to make sure that the evaluation focuses on specific aspects of the systems. The prototype will be evaluated throughout the design which is termed as formative evaluation by Rogers, Sharp and Preece (2007, p.589).

5.3 Evaluation approach

The usability testing will be the evaluation approach. The following methods will be applied:

- observing users when using the prototype
- asking users their opinions on prototyped ideas
- asking experts their opinions on the prototyped ideas

6 Conclusion

This report has outlined ideas and activities involving the understanding of use and users, the prototype design process and prototype evaluation with respect to the integration of the student ID card and transport ticketing systems.

7 References

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