

Mobile Application for Public Transportation with “Active” Check-in/Check-out Project Proposal

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Objectives

The goal of this project is to create a system that will allow the counting of public transportation users in a bus. The idea is to create a mobile solution based on, e.g. scanning of QR codes via a mobile phone, to signal the location where a user got into the bus and the location where they left. The system should keep a record of details such as how many users travelled in the bus, what were the routes used, and at what time. The idea of a "virtual pass" will be explored, i.e. instead of acquiring a ticket from the bus driver on entering the bus, or elsewhere, the user will have a "virtual pass" that they can load with credit and that will be used to pay for their trips after signalling their entry and exit from the bus. The solution should be cloud or blockchain based.

The work will focus on the use case of buses but it should be designed to be reusable in other public transport contexts (train, public bicycles and scooters, etc) to allow the collection of data that will support the decision making regarding the availability of public transport.

Mobile apps have recently attracted considerable attention as ticketing solutions (e.g. [1]). The initial steps of the project (part of the literature review) will be to study these developments and acquire insights from proposed solutions.

Work plan and expected timeline

- T1** Literature review and initial familiarisation with the transportation context
(week 1 → week 3)
- T2** Choose technologies to be used and prepare work environment
(week 2 → week 4)
- T3** Gather requirements and define design for the system
(week 2 → week 5)
- T4** Implement and test the software tool
(week 5 → week 13)
- T5** Evaluation
(week 13)
- T6** Report writing
(ongoing throughout the project with the final 2 weeks fully dedicated to report writing)

Expected Output

1. Project report
2. A mobile app for “active” check-in and check-out of public transport users with a back-end that collects all relevant data
3. Conference Paper (depending on results and time available)

Bibliography

[1] Project Mobile Ticketing, <https://www.tudelft.nl/en/ide/research/research-labs/xcept-expertise-centre-for-e-ticketing-in-public-transport/>