Software Design Study
Final Report

Jack Browne, 1236782
Thomas Clarke, xxxxxxx
Keiran Crook, xxxxxxx

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Chapter 1

Introduction

1.1 Problem Definition

We began this project by exploring the 'Safety in Cycling' problem space. Our motivation for this was that we felt cyclists were involved in too many avoidable accidents. A key part of exploring this space was speaking to different stakeholders to get their opinions on the main causes of accidents. We also looked a lot of statistics from various sources in an attempt to try and spot some interesting trends.

Initially we looked into all different formats of cycling; mountain biking, BMXing, road cycling, etc. however the data showed quite clearly that the majority of serious accidents were happening on the road. Moreover they were happening on fast moving roads during commuting hours.

This information allowed us to narrow the problem definition down to the following:

- Reducing number involving cyclists on UK roads

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1.2 Purpose

This report is written for the benefit of any software or hardware engineers who are tasked with implementing this product. For this reason, in parts, the report may assume some basic technical knowledge of these fields.

The report should describe, in detail, our solution to the problem above. The detail should be enough so as that a small team of people would be able to implement the solution in its entirety with relative ease. The report should address all of they key areas of the solution and be void of any ambiguities so that it alone can clarify any queries about the product.

1.3 Scope

1.4 Overview

Firstly we will give an overview of the system as a whole before further explaining the key design decisions that were made.

1.5 Definitions, Acronyms and Abbreviations

RTA Road Traffic Accident

1.6 References

The design decisions that we made are based on our earlier research and we will continually refer to this research throughout the report, all of which is documented in the Research Report found in the appendix.

All other papers, articles, etc. that were used to formulate our ideas are referenced in the Bibliography.

Chapter 2

System Overview

Chapter 3

Design Considerations

3.1 Design Assumptions, Dependencies and Constraints

When designing this system we have had to make a few assumptions about certain characteristics of the end users, this is because it would be almost impossible to design a system of this nature that is both effective and easy for everybody to use.

Firstly we have assumed that the end user will be fully able-bodied. We feel that this is a necessary assumption despite the fact that one in twenty cycling commuters are disabled (Aldred). Cycling is a very physical activity and generally those with severe physical disabilities are better off with a bike that is specifically designed to cater for their particular disability. It is very much possible that the final product will be usable for the less severely disabled, however we will not be creating our design with any of these disabilities in mind.

Secondly we will be assuming that end users some familiarity of bikes and particularly road bikes. We will not be designing an educational tool that teaches how to ride a bike nor we will it be an assistance

3.2 Design Goals and Guidelines

During the design process our overriding guideline

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5.2.1 Component n

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Component n interface description

Component n processing detail

Dynamic behaviour of component n

5.2.2 Component n+1

Processing narrative for component n+1

Component n+1 interface description

Component n+1 processing detail

Dynamic behaviour of component n+1

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Bibliography

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http://www.wheelsforwellbeing.org.uk/rachel-aldreds-analysis-census-data-disability-cy