1 Introduction

1.1 Goals and Objectives

1.2 Methodology and Structure

2 Background and Related Work

- Why: Improve *Enjoyment*, *Education* and *Performance* in racing games
- Next: Analysing existing games to learn where to improve

2.1 Racing Games and Simulators

- Why: Analysing traditional Simulators how they create *Enjoyment* and *Educate*
- Next: Racing games enable different playstyles

2.1.1 Racing Game Genres

- Why: Analyse the focus of the different genres on *Enjoyment* and *Education*
- Next: Simulators are used for applications beside racing

2.1.2 Application Scenarios

- Why: Where are simulators used for *Education*
- Next: How can we combine *Education* and *Enjoyment*? We have to look into psychology.

2.2 Gamer Psychology

- Why: Psychology helps to identify how to improve *Enjoyment*, *Education* and *Performance*
- Next: Persons are different and react differently. How does personality influences playstyle

2.2.1 Personality Theory in Games

- Why: Identify *Performance*, *Enjoyment* for different personalities in gaming and driving
- Next: Personality has huge impact on risk taking. Analysing risk-related symptoms in driving.

2.2.3 Driving and Risk Taking

- Why: Risk taking is a big part of driving. How to improve *Performance* and reduce driving errors.
- Next: What is the best way to increase *Education* and *Motivation* in racing games?

2.2.2 Learning and Motivation

- Why: Methods to improve/measure *Educational* effect and *Motivation*
- Next: Game design guidelines help to meet the specific requirements for *Education*, *Performance* and *Motivation* discussed in this section.

2.3 Game Design

- Why: Handle complex development tasks and ensure *Enjoyment* by looking into universal game design principles.

- Next: Design principles for finding ideas, maintaining, usability and optimizing player experience.

2.3.2 Game Design Principles

- Why: Comparison of game design principles and how to integrate them Racing Games. Discuss usability and functional requirements which have to be fulfilled on the technical side
- Next: Design principles look at universal patterns in games. Looking at the psychological side of enjoyment to extract features that generate entertainment for the player.

2.3.1 Enjoyment in Games

- Why: Incorporate psychological principles in games to improve *Enjoyment*.
- Next: Gamers have different preferences; find effective strategies for racing games.

2.3.3 Incorporate Player Preferences

- Why: Provide the best player experience within a genre (*Enjoyment*).
- Next: Technical implementation of the discussed psychological and game design principles.

2.4 Racing Game Algorithms

- Why: Design algorithms that improve *Enjoyment* and *Motivation*.
- Next: Challenge players (see Principles) by adjusting difficulty.

2.4.1 Automatic Difficult Adjustment

- Why: Human-like opponents with similar skill level to increase *Enjoyment and Motivation*
- Next: To automatically adjust skill we have to estimate the player skill level.

2.4.2 Ranking Systems

- Why: Skill level estimation algorithms that can be used in racing games to improve *Enjoyment and Motivation*.
- Next: See if skill adjustment influences *Performance*.

2.4.3 Measuring Driving Performance

- Why: Measure driver *Performance* in racing games
- Next: Review important sections

2.5 Summary

- Why: Review *Enjoyment*, *Performance* and *Education* in racing games, psychology and which algorithms can be used to improve the metrics.
- Next: Implement the success factors to improve Enjoyment, Performance and Education in racing games.

3 Design and Requirements

- Why: Considerations made in order to create a suitable racing scenario to improve *Education*, *Performance* and *Enjoyment*. Identify main tasks.

- Next: Analyse Stockholders and find the *Requirements*

3.1 Architectural Analysis

- Why: Requirements in order to benefit from a virtual racing education environment
- Next: Concrete implementation of *Requirements*

3.2 Architectural Synthesis

- Why: Build customized virtual worlds for multiple users and makes them available for people all around the world via the internet.
- Next: Find best suited platform

3.2.1 Selecting a Game Engine

- Why: Identify a platform that meets the *Requirements*
- Next: Modules build on top of the engine.

3.2.2 Conceptual Architecture

- Why: Software modules and how they are connected.

3.3 Summary

- Next: The concrete implementation of the given algorithms and principles that meet the requirements.