1. **Introduction**

*1.1 Purpose of the system*

Overtake is a classic arcade car game with a twist. We have taken an all-time favorite arcade game of a car speeding down a highway and avoiding obstacles along the way, trying to survive for as long as possible, and added new elements, adding to the challenge and reviving this classic. More obstacles, power-ups, and a range of new vehicles make Overtake a more engaging version of it’s monochrome ancestor. Overtake uses a simple yet complete user interface making it easily learnable for the user, and utilizes dynamic game difficulty balancing to ensure the difficulty is always at a sweet spot.

*1.2 Design Goals*

**Adaptability:** Overtake will be implemented using the Java programming language allowing for the game to be played on multiple operating systems, without us, the developers, having to make any changes to the source code.

**Extensiblity:** The current design of Overtake is such that it does not allow much room for changes. The reason for this is because we had a clear idea of what we want the game to be and that is a simple reinterpretation of a classic arcade game. This means we did not anticipate any need to add other features than what is already implemented in the game. That would be to deviate from our initial objective.

**Reliability:** The game is planned to be completely bug free, having all boundary cases well tested and leaving no room for error. However, as with all software, it is still possible for anomalies to pop up.

**Usability:** As the description of the purpose of the system stresses, the game is simple, meaning it allows for the user to get acquainted with and comfortable with the controls, features and objectives in the game very easily. To make such a simple game appealing, we have also made sure the user interface and gameplay experience are easy on the eye.

*1.3 Trade Offs*

**Modifiability and Reusability:** The way Overtake is designed does not make changes very easy. Since all game logic is implemented within one class, the controller, any updates to the model classes, or addition of new models, will be a challenge to integrate with the existing system. Reusability of the source code is not a goal we had for our project.

**Functionality:** Overtake is not the most complex of games and does have a rather limited functionality. The game only implements the basic concepts of an arcade car game with slight changes to the objectives and challenges.