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Context Project Group 8

Final Report

1 Introduction

At the beginning of the project we were given a problem to design a solution for. The problem was that in many circumstances, a whole bunch of people have to stay together in the same place for a considerable amount of time. Often, however, these people do not even know each other, but they still stay together at the same location. A game would make some of these situations bearable, e.g. when there is waiting time involved. After playing a game in such a situation it can also give the user a sense of e.g. achievement when a user gets a new high score or solves a difficult puzzle.

For our project we were assigned to design a game to entertain such large groups of people and fulfill our end-user's need. The requirements from the end-user were that the game must be original, i.e. the game concepts must be unique. The game must also be creative, fun to play and also let people interact with each other through e.g. verbal communication with each other.

As a solution to this context problem we developed a game called Taxi Trouble and it will be introduced in the next chapter.

This document is about the developed, implemeted and validated software product. In Chapter 2 it will provide an overview of developed and implemented software product. Chapter 3 will describe the developed functionalities. An HCI module that was realized for the user interaction with the developed solution is provided in Chapter 4. In Chapter 5 an evaluation of the functional modules and the product in its entirety, including the failure analysis will be provided. And at the end of the document in Chapter 6 an outlook will be provided regarding the possible improvements in the future and the strategy to achieve these improvements.

2 Overview

What we would like to include in this section is:

1. Brief description of the game (not elaborate as in the product vision)

2. Give an overview of all of the functionalities that are included and implemented in the final version of the game:

(a) **Driver and navigator screens of the game.** Tell something about the roles and different views corresponding to those roles in the game.

(b) **Teams of drivers and navigators**: Description of in which way teams are formed, i.e. each team consists of a driver and navigator.

(c) **Taxis**: Controllable by a driver and collidable with other taxis.

(d) **Passengers**: pickup, drop-off and stealing

(e) **Power-ups**: can be picked up by the driver and activated by navigator, there are different types

(f) **Game Head Up Display**: displays team, score and time left in the game

(g) **Sound effects**: different sound effects for different events

(h) **Menu Screen**: when the game starts, you can either start the game or check out the leaderboard

(i) **Multiplayer implementation**: invitations via Google account, player can set the preferred number of other players, team score is submitted on the leaderboard when the game ends.

3 Functionalities

- Driver and Navigator Screen

  - **Driver screen** has myopic 2d view of the map where it makes driver's sight limited such that it is impossible to win the game without cooperation. There are touchscreen controls that is used by driver to control the taxi's acceleration and direction.

  - **Navigator Screen** has the 2d zoom-able screen in top view and Navigator gets the whole map overview. There is a power-up button where is controlled by Navigator and can be activated at the right moment by him/her.

- Teams

  - Teams is made of two participants where each will takes a role in the game; Either as an driver or Navigator. After all the required teams(from 2-4 teams) are created the game begins.

- Taxi

  - Taxi is a solid object , it has wheels that controls steering and acceleration which is controlled by driver.

  - When two taxis collide with each other, collision is detected and natural reflection of the taxi body upon collision is performed.

- Passenger

  - Passenger is an entity where are spawned in random locations in the map.

  - There are different looks of a passenger(girl, boy, man)

  - each passenger is spawned in random location ready to be picked up by taxi.

  - passengers can be stolen by other taxi while on their way to destination.

  - Destination is assigned to each passenger which is dropped off by taxi in the game.

  - when passenger is picked up by taxi, drop off timer is started and in order to achieve score taxi need to drop passenger off before drop off timer ends.

- Power-ups

  - There are three types of power-ups(invincibility, speed boost, increase drop off timer)

- Invincibility power up is made when taxi wants to protect the passenger from getting stolen.
- Speed boost when activated will increase the acceleration of taxi from 10 second
- Increase drop off powerup will extra 10 second to the time that needs to be dropped off by passenger

- Game Head Up Display

  - displays team : textual representation of team numbers
  - score : achieved score
  - time left in the game : count down timer indication time left for taxi to drop passenger at his/her destination

- Sound effects

  - Sound effect is activated at the time when events such as taxi collision, passenger pickup/drop off/stealing happens.

- Menu Screen

  - Play button: when play button is pushed the player is guided to the room, from there player either can find random people or invite their friends from Google+ to team up with friends.
  - Leaderboard: player can view the top scores of all participants so far, friendâĂŹs scores is shown highlighted.

- Multiplayer

  - Multiplayer is formed via invitation of other participants
  - player can set the preferred number of other players to play with the boudary is from 2 to 4 teams
  - team score is submitted on the leader-board when the game ends.
  - all teams are concurrently updated on the events that are happening inside the game environment.

4 Interaction Design

This section will describe the Interaction Design aspects of the user tests that we have held. The following will be discussed in this section:

1. Introduction

   (a) Why we chose to use the empirical 'experiment' practice for the product evaluation.
   (b) What part of the system we tested.
   (c) The budget, time and equipment available for the test.
   (d) The nature of our prototype.

2. An overview of how the testing was done

   (a) The setting and location of the test
   (b) The users that tested the game
   (c) The methods that we used.

3. A summary of the findings

   (a) Formative and summative aspects of our evaluation.

5 Evaluation of Functional Modules

What we would like to include in this section is:

1. Table with overall evaluation results from user tests.

2. Evaluation of individual functional modules (with more specific feedback we got from the users):

   (a) **Driver controls**
   (b) **Navigator controls**
   (c) **Picking up and dropping of passengers**
   (d) **Stealing passengers**
   (e) **Power-ups**
   (f) **Game Head Up Display**
   (g) **Sound effects**
   (h) **Menu Screen**
   (i) **Multiplayer implementation**

6 Outlook

In the end after delivering your product most of the time everyone is happy because you achieved what has to be done, your product fulfills all requirements given and it finally works! But there is always room for improvement. Taxi Trouble is playable and is a lot of fun to play, but it still contains bugs and it still lags a bit. These are problems that should be solved to achieve a better end result. The development team also has a ton of leftover features that didn't make the draft. Perhaps some part of the development team will add some of this features in the future, only time can tell.