Formal Game Proposal (Rough Draft) - Game Programming Lab 2009

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Dirty Derby

1. Game Description

1.1. Story

1.2. Game Idea

The initial idea was to create an authentic car simulation and combine it with a cool game play. It will be a pure multiplayer game, where two players face each other in a small arena. Each of them controls a car by the 3rd person perspective. The main goal is to earn as many as possible points by collecting items, which are placed in the arena. To makes things more interesting, the arena is surrounded by a deadly cliff and also in the inner region there are holes where incautious players find their deaths. Falling into the depth will remove some of the already collected points, thus collecting items is not the only way to win the match. Players can use their cars or weapons, which also can be collected, to get the opponent falling into the depth. At the end the player with more points wins the match.

1.3. Game play

1.3.1. Game Elements

- Terrain mesh created with a height map
- Two cars controlled by human players via split screen
- Realistic car physics
- Terrain contains obstacles and holes
- Players may earn points by collecting items and defeating the opponent

1.3.2. Rules

Deathmatch with collecting items:

- The level is surrounded by a cliff and contains holes in the inner region
- There are two item types: one gives points and the other makes a weapon available for the player to use
- A weapon item can only be collected if the player currently possesses no weapon
- If a player falls into a hole he loses some amount of points and respawns
- Players can use their weapons or their vehicle in order to throw the opponent in a hole or outside the level
- The match is finished after some amount of time or one of the players has reached a predefined amount of points.

**Other game modes:** Time race, Crash Derby …

1.3.3. Weapons & Special Items
- **Rocket launcher.** Fires a rocket which tries to hit the next available target.
- **Mines.** Can be placed by a player at any location and it is activated if a car collides with it.
- **Gravity field.** The player can activate it for some amount of time and is then not vulnerable to collision impulse induced by a collision with other cars. Instead the impulse added to the other car is multiplied with a constant greater than one.
- **Turbo boost.** Increases acceleration of the car for some amount of time.
- **Other possible items:** Invisibility, Worm hole, Low Speed, Teleporter …

1.4. Concept Art

1.4.1. Cars

1.4.2. Levels
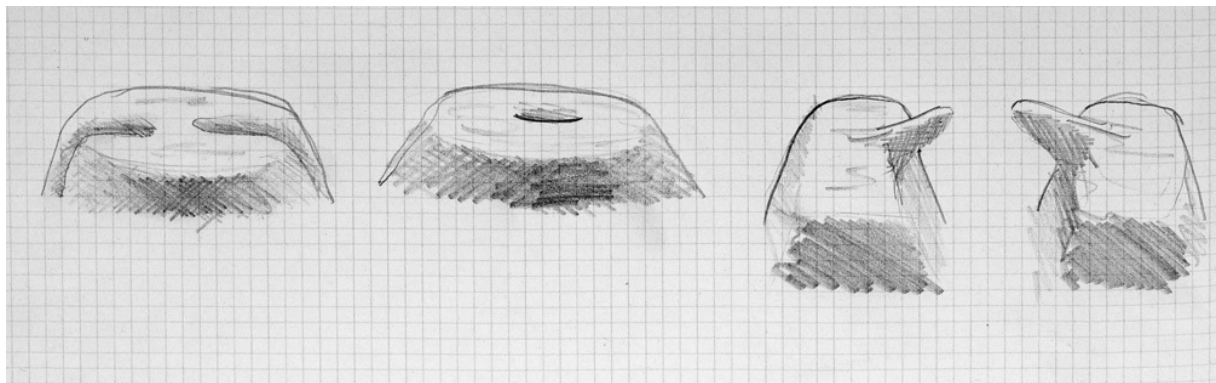
2. Development Schedule

2.1. Layers
Functional Minimum. A Simple car model is created, which can be driven over a plane by the user.

Low Target. The car has a authentic physics implementation and the plane is replaced by a height field terrain. Also the collision detection between the cars and the terrain is implemented correctly.

Desirable Target. The car consists of a nice model and there is at least one nice looking playable level. A complete game modus and some weapons are available. Also some simple sound effects are included.

High Target. Some advanced graphics effects and additional game modes are added.

Extras. Some shaders and additional levels are added. It is possible to play against the computer, i.e. some A.I. is implemented.

2.2. Tasks

Task	Description	Who	Hours	Actual
Functional Minimum				
1	Simple Car Physics	Lukas B.	10	
2	Framework setup	Christian	10	
3	Simple car model	Lukas S.	5	
4	Camera movement	Christian	5	

5	Input	Lukas S.	5	
Low Target				
6	Car Physics	Lukas B.	10	
7	Terrain	Lukas S.	5	
8	Collision Detection	Lukas B.	5	
9	Game Play	Christian	10	
Desirable Target				
10	Weapons Physics	Lukas B.	5	
11	Weapons Modeling & Animation	Lukas S.	10	
12	Level Design	Lukas S.	20	
13	Car Modeling & Texturing	Christian	20	
14	Game Mode	Christian	10	
15	Simple Sound Effects	Lukas S.	5	
High Target				
16	Advanced Sound Effects	Lukas S.	10	
17	Advanced Graphic Effects	Christian	20	
18	Additional Game Modes	Lukas B.	15	
Extras				
19	Shaders	Lukas S.	20	
20	Additional Levels	Lukas B.	20	
21	A.I.	Christian	30	
Others				
22	Prototype Chapter	all	5	
23	Prototype Presentation	all	2	
24	Interim Report	all	5	
25	Interim Demo	all	2	
26	Alpha release chapter	all	5	
27	Alpha Demo	all	2	
28	Playtesting	all	20	
29	Playtesting chapter	all	5	
30	Playtesting presentation	all	2	
31	Debriefing presentation	all	2	
32	Public presentation	all	5	
33	Conclusion chapter + video	all	10	

2.3. Timeline

3. Assessment
- Realistic Car Physics
- Easy accessible game play
- Only a few simple game rules
- Long time motivation because it is a multiplayer game and with increasing skill level battles may become more intense