

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

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Dirty Derby

1. Game Description

1.1. 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 2 – 4 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 make 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.

1.2. Game play

1.2.1. Game Elements

- Terrain mesh created with a height map
- 2 – 4 Cars controlled by human players via split screen
- Authentic car physics
- Terrain contains obstacles and holes
- Players may earn points by collecting items and defeating the opponent

1.2.2. Rules

Deathmatch with collecting items:

The main goal is to collect as many as possible items to earn points and try to push the opponents down into the depth, by using the collected weapons or by hitting whose cars:

- 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. The items regularly re-spawn.
- The items which give points if collected re-spawn at random positions on the map
- The weapon items may re-spawn every time at the same place or also re-spawn at a random position. This should be determined by play testing.
- 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 re-spawns
- 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:

We planned to add additional game mode if there is enough time. One would be a normal time race between 2 – 4 players on a fixed course. It may include the features from the death match mode i.e. items, holes, weapons.

1.2.3. Weapons & Special Items

As already mentioned above, players should have only access to one weapon at the same time in order to keep the handling simple and easy accessible. Whether the cars are destructible by the weapons should be determined within the play test phase. But hitting an opponent's car with a weapon should at least have some visual feedback. The main purpose of the weapons is to help the players to get opponents off the map, such that they lose points.

Following list gives an overview of the weapons we plan to include:

- **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 ...

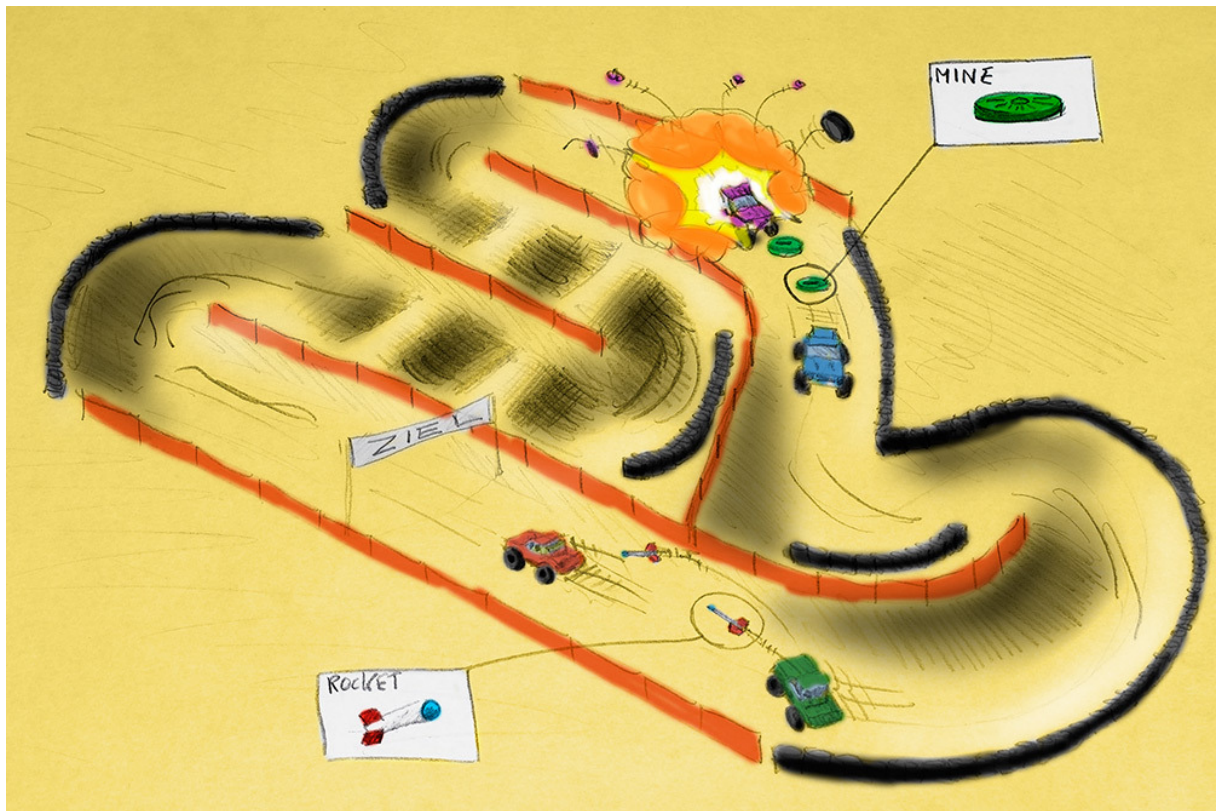
1.3. Concept Art

1.3.1. Cars





1.3.2. 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. Also a basic camera implementation should make it possible to follow the car in the 3rd person perspective.

Low Target. The car has an 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 and levels are added.

Extras. Some shaders 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	Lukas B.	20	
3	Simple car model	Christian	10	
4	Camera movement	Christian	10	
5	Simple Terrain	Lukas S.	10	
Low Target				
6	Car Physics	Lukas B.	20	
7	Terrain	Lukas S.	15	
8	Collision Detection	Lukas B.	15	
9	Game Play	Christian	20	
Desirable Target				
10	Weapon Physics	Lukas B.	15	
11	Weapon Modeling & Animation	Christian	10	
12	Level Modeling & Texturing	Lukas S.	40	
13	Car Modeling & Texturing	Christian	20	
14	Game Mode	Christian	10	
15	Simple Sound Effects	Lukas S.	5	
High Target				
16	Additional Levels	Lukas S.	20	
17	Advanced Graphic Effects	Christian	20	
18	Additional Game Modes	Lukas B.	15	
Extras				
19	Shaders	Christian	20	
20	Advanced Sound Effects	Lukas S.	20	
21	A.I.	Lukas B.	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	
34	Polishing	all	30	

2.3. Timeline

Task	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12	Wk13	Wk14
	<i>Critiques and Proposal</i>	<i>Prototypes</i>				<i>Interim Report</i>			<i>Alpha release</i>	<i>Play test</i>	<i>Debriefing</i>	<i>Public Presentation</i>
Functional Minimum												
1	B	B										
2	B	B										
3	C	C										
4	C	C										
5	S	S										
Low Target												
6			B	B	B	B						
7			S	S	S	S						
8			B	B	B	B						
9			C	C	C	C						
Desirable Target												
10							B	B	B	B		
11							S	S	S	S		
12							S	S	S	S		
13							C	C	C	C		
14							C	C	C	C		
15							S	S	S	S		
High Target												
16										S	S	
17										B	B	
18										C	C	
Extras												
19												
20												
21												
Others												
22		A										
23			A									
24					A							
25						A						

26								A				
27									A			
28									A			
29									A			
30										A		
31											A	
32												A
33											A	A
34											A	A

3. Assessment

The game features an authentic car physics implementation with a simple game play. Players should be familiar with the game controls and rules within a few minutes. The game play is simple but should be a lot of fun from the first moment when starting playing it. Since it is a pure multiplayer game and with increasing skill it becomes even more fun, it should provide a long time motivation to play it.

Since it is not placed in a special scenario, it addresses practically every one, who wants to spend some time having fun with a game which does not need any previous knowledge.

Our game is a success if it features plausible car physics with a game mode and level, which make a lot of fun.