Final Report

Game Programming Lab 2010

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1 **Contents**

2 Summery of our final result

2.1 Changes from the alpha release

2.1.1   Graphical diversity

During playtesting, one of the mostly mentioned criticisms was the "boring and monotonous city graphic" because of too similar and repeating buildings. Since we were already aware of this problem, we decided to have certain part on every model that can be dynamically colorized. The same is done with the texture of the civilian cars. To add more different buildings was simply not possible due to the lack of time until the final presentation. But the colorization gives the graphics already a more diverse look.

A park in the middle of the map was another supplement to overcome the problem of the lacking diversity within the city map.

2.1.2   Highways and cable cars

Another step to solve the previously mentioned problem was the addition of a "highway" – a wider, four lane road spanning around the city area and dividing it into four quarters. As a side effect, the highway also provides a better recognition value to certain parts on the map. Four cable cars curving around this "highway" bring another plus of diversity to the overall look of the city.

2.1.3   Street lights

We also introduced more lights. Between any two buildings and at their corners, a slightly flickering street light is positioned above the street. Those add a lot of ambience and "feeling" to the game's graphics and are a real eye-catcher. This also includes some major changes regarding the culling: With the previously used, relatively simple culling algorithm, the Xbox 360 was simple no longer able to handle all the lights without bigger framerate drops.

2.1.4   Normal maps

All street and building elements were supplemented with normal maps.

2.1.5   AI

As already mentioned in the playtesting report, we added a „collision avoidance system" for all civilian cars. Since the bug in the police AI (which was present in the alpha version) was fixed, the police act more reasonable. This also increases the difficulty by quite a notch.

2.1.6   „HUD"

One comment from the Black Rock Developers was that the guidance element below the truck (which points towards the next target and shows how much fuel is left) should convey a strong sense of urgency when fuel is low. This was done by turning it into a red color and start pulsing faster when the player is almost out of fuel.

2.1.7   Moving targets

Another idea from the Black Rock Developers was the introduction of moving targets. We found this a really brilliant idea ("why didn't we came up with this ourselves?!?!") and added other trucks with barrels on them to the map. When the player bumps into this "mobile pickups", the barrels are transferred to his truck. Using such a "mobile pickup" will be rewarded with some bonus money (50$) and 20% more fuel upon delivery. The other trucks are "refilled" with barrels after a certain amount of time (60 seconds).

These "mobile pickups" are additional and auxiliary pickups, since they are never selected as target pickup (where the guidance system points at), so that skilled players can search them on purpose, for the bonus or the fun of it. Casual player may be rewarded by a shorter pickup and a bonus, when the cross paths with a mobile pickup by chance.

Upon sighting of the player's truck, the "mobile pickup" tries to flee in a perpendicular route to the player's truck current driving direction.

2.1.8   Free Camera

The option to have a free roaming camera was initially for the purpose of graphic debugging. To create some scenes for the trailer, we added the possibility to set waypoints when controlling the free camera. Those waypoints are afterwards interpolated into a 3d curve and the camera will follow this curve on command.

2.1.9   Highscore board

The top 12 player's score are stored inside a highscore board on the Xbox 360 or pc harddrive. Since the Xbox 360 / XNA does not provide direct access to the internet (for obvious reasons), our idea of a worldwide leaderboard using a pretty simple webservice was simply not possible.

2.1.10 Game music

Since approximately one week before the presentation, the final game music was included in the game. At least in the final report, we have to mention the source of these two very beautiful and original theme songs, which were composed, performed and recorded by Timothée Keller for the sole purpose of our game. Timothée is a cousin of Philipp's, who knows a great deal about (jazz) music, is a very fine (jazz) piano player and is even studying audio engineering right now. The music is set to also reflect the time of the Prohibition, through both melodies and instrumentation.

Timothée, thank you very much!

2.2 Pictures of the final version

3 Course conclusion

3.1 Development targets

Looking back on our initially stated development target, we have completed all targets including the forth layer (high targets).

We also achieved to complete some of our more important extra targets like

- Civilian (NPC) traffic
- "drunk'O'meter" (which is less a meter then an additional effect with some minor influence on the gameplay now)
- More stylized rendering
- Highscore Board

Some of the lately added additions (cable cars, highways, normal maps, moving targets) were not initially planed but nevertheless added a lot to the overall experience.

Without a doubt, there is still some room for improvements. But for the amount of time, we are personally very happy with the final result. The final game not only meets our expectations but also exceeds them.

3.2 Development schedule

Overall, we were able to follow the development schedule more or less as planned. Nevertheless, there were some meanderings within the time span.

We started to implement some of the higher, more complicated targets before the full completion of the lower targets. The advanced graphics effects and the car AI (civilian and cop) are two of those targets. Especially the civilian cars turned out to be far more essential for the overall gameplay experience as initially assumed.

But the meanderings from the task schedule inside the formal game proposal were only slight ones (about 3-7 days) and we were always able to catch up pretty soon.

3.3 Personal impression / conclusion

We think it's not necessary to say that the course implies a lot of work and extra hours.

We learned a lot during this course about technical stuff but also about working together as a team.

To be able to use the newly gained knowledge combined with the one from previous courses and see now the final result of that knowledge and every hour of hard work in our final game was really rewarding.

It's clearly one of the most exciting courses the department of computer science offers.

The conversation with the guys from Black Rock after the presentation was also very informative, entertaining and enlightening. It was just regrettable that they had to leave so early.

Another thing absolutely worth mentioning is the atmosphere between the groups. With most of the groups participating in this year's course, we were regularly meeting, discussing, chatting and joking apart from the lectures official meeting times. This inspiring environment beyond any unfriendly competition was simply awesome!