

# Developing a mini racing game - Group C

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# Outline

## *M*iniature address

### Outline

- game idea
- XML-Importer
- graphics
- physics and gamelogic
- assets



# Game idea

Scene



# Game idea

## Gamemodes

- free driving mode
- round time mode

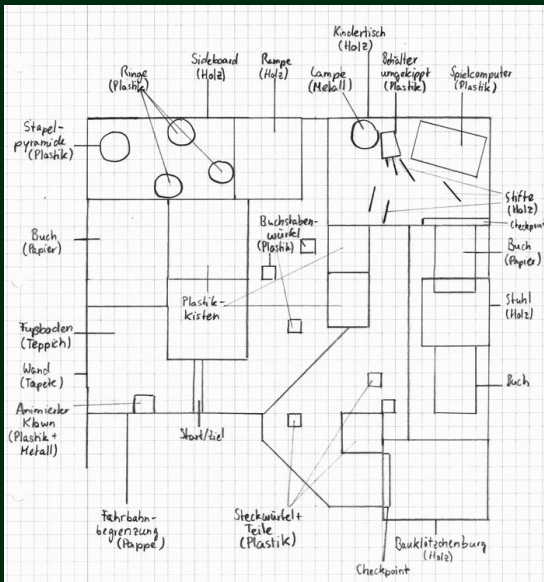
## Round time mode



## Movable objects



# Racing track sketch



# XML-Importer

## Architecture

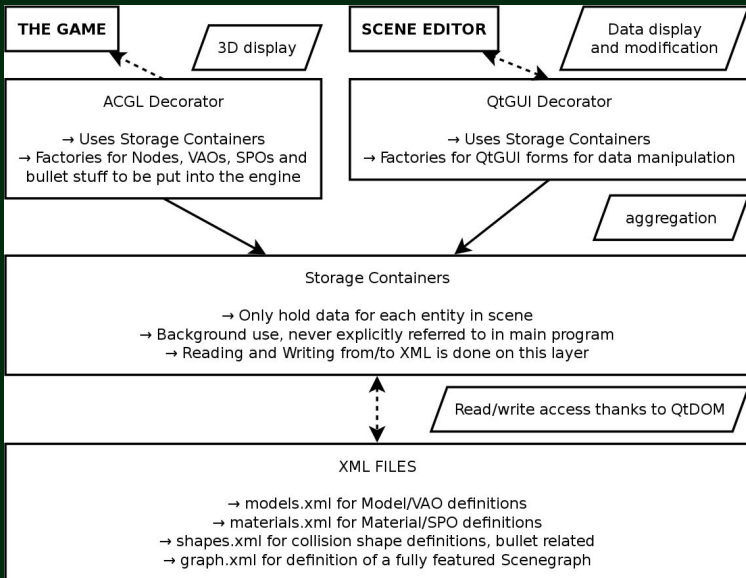
- 1 Storage Container layer
- 2 3D Decorator
- 3 GUI Decorator

## Constellation

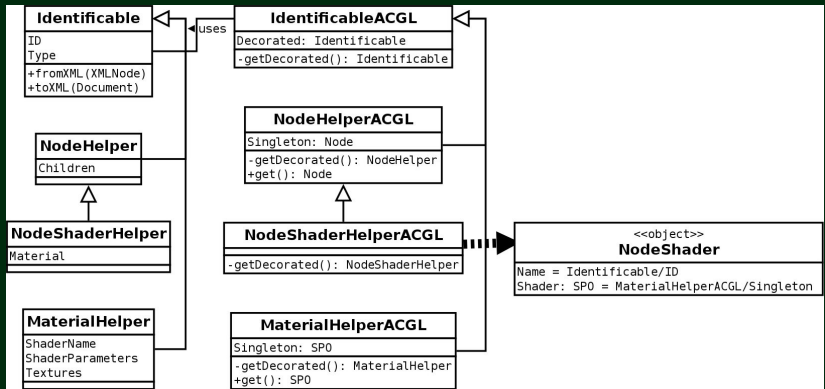
Layer 1 can be combined with either layer 2 or layer 3 to instantiate the needed types of objects



## Which is which?



# Simplified Example





# Graphics

## Implemented effects

- bumpmapping
- environment mapping
- glow

## Effects with unsolved issues

- trace of tires
- shadow mapping

## Discarded effect

- motion blur



# Graphics - bump mapping

Example image



## What?

- fakes bumpy surfaces
- used for many objects: tires, table, sideboard, etc.

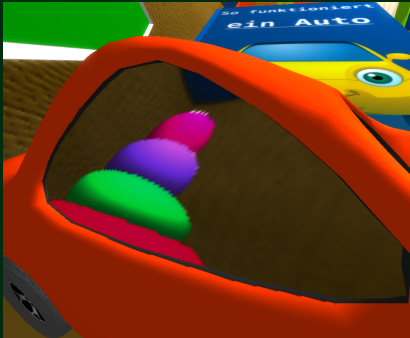
## Why?

- creates a more realistic atmosphere



# Graphics - environment mapping

Example image



## What?

- displays reflections from the environment
- in specification as cube mapping
- used only for car windows

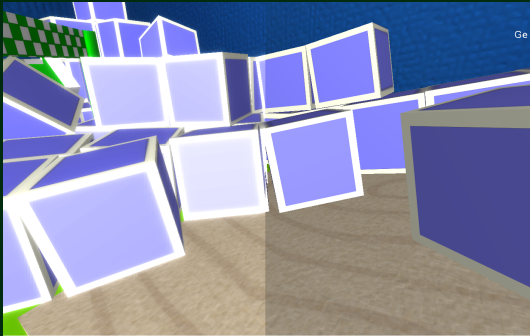
## Why?

- makes car windows more realistic



# Graphics - glow

## Example image



## What?

- fluoresce objects
- oversubscribe bright parts

## Why?

- cartoon like
- lax but realistic atmosphere



# Graphics - traces of tire

## Problems

- first attempt: render into texture
- second attempt: particle effect
- problems with ACGL
- create own AO and VBO

## Unsolved issue

- probably memory mismanagement



# Graphics - shadow mapping

## Solved issues

- move camera to light position
- create depth buffer

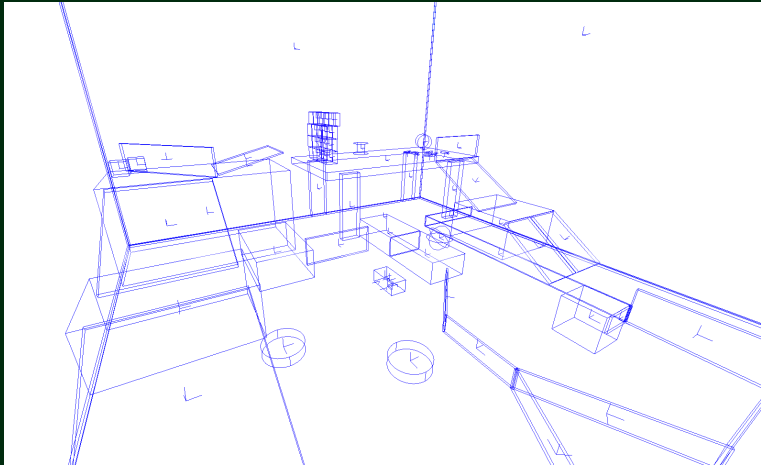
## Unsolved issue

- depth buffer seems to be broken



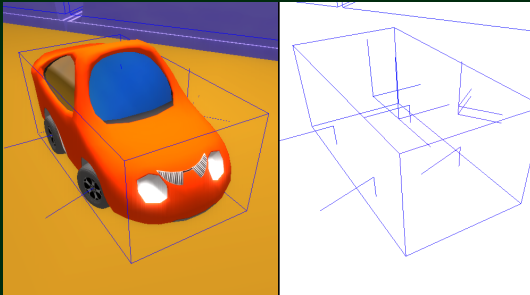
# Physics and Gamellogic

## Physics representation



# Physics and Gamellogic

## Raycasting vehicle



## Features

- approximate real vehicle
- easy to compute
- easy to manipulate

## Problems

- update the position
- getMotionState





# Physics and Gamellogic

## Trigger System



## Trigger system

- based on contactPairTest
- saves resources

## Checkpoints

- check progress
- provide reset option

# Physics and Gamellogic

## User Interface



## OpenGL text

- bitmap based font creation

```
!"#$%&'()*+,-./
0123456789:;<=>?
@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_
`abcdefg hijklmno
pqrstuvwxyz{|}~
€ ; : ' " , - . / :
: ; : ' " , - . / :
!"#$%&'()*+,-./
0123456789:;<=>?
@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_
`abcdefg hijklmno
pqrstuvwxyz{|}~
€ ; : ' " , - . / :
: ; : ' " , - . / :
```

- color
- size
- alpha
- align



# Assets - car

Car in game

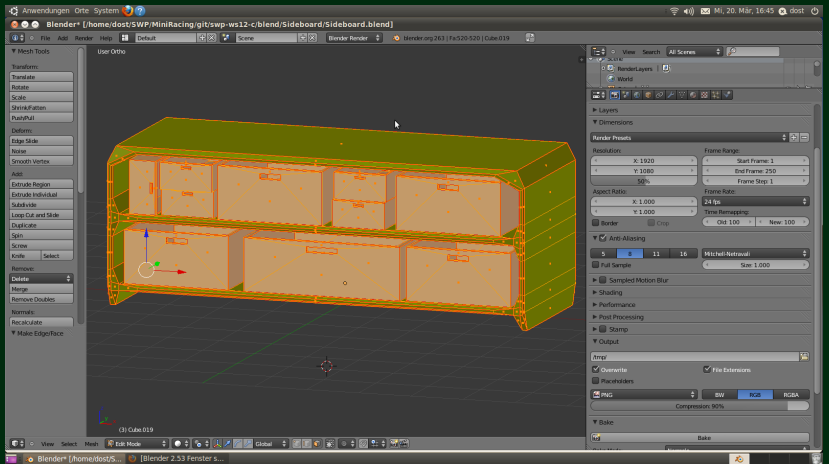


Texture



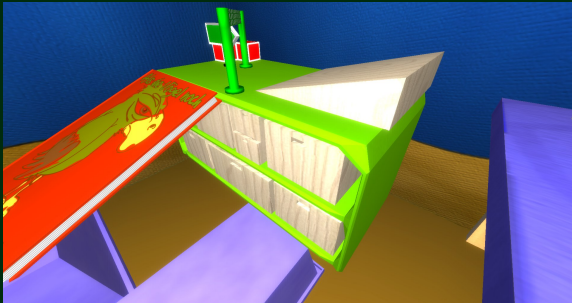
# Assets - sideboard

## Creation in Blender



# Assets - sideboard

Sideboard in game



Texture



Normal map

