

Teture

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„Teture“ is a game, where the player has to defend goods from animals by smashing them with food. Placing food works like in a 3d-version of the classic game „Tetris“.

Story

The animals of Bagley Wood are, like every animal on earth, striving for financial wealth. They do everything to get to money, even commit theft. I think your gold storage in the forest is not safe.

Features

- 5 lives
- Single Player
- Tetris and Tower defense in 3d- gameplay
- High scores

Gameplay

The player is looking from a plane. In the middle of the plain is a treasure.

During gameplay, different types of animals with different properties are spawning on the border of the world and are trying to get to the treasure. To prevent this, the player is controlling food flying down in a tetris like manor. With this falling food, the player has to crush the animals (see Sketch 3).

For every crushed animal, the player's score is rising. The game is lost, when every piece of the treasure is stolen by the animal.

Also the rules of ordinary tetris are active:

- If all fields of a line in one height level are occupied by food stones, all blocks in this line disappear.
- The game is also lost, if the player stacks the stones to high at one field.

Following foodtypes/tetris stones are in the game:

- Burger (cube)
- Carrot (L-shaped stone)
- French fries (I-shaped stone)
- Mushroom (T-shaped stone)
- Cherry (stairs-shaped stone)

The animals are walking a straight path from the border to the middle. If there is a food blocking the way, the animal takes some time to eat it or crawls over it (depends on animal type).

Following animals are in the game:

- Squirell: Eats the food
- Hirschkäfer: Crawls over the food

Game Start

SCORE: 114

LIFEPOINTS: 5



Game Over – No treasure/lifepoints

SCORE: 1152

LIFEPOINTS: 0



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Effects:

Vertex Skinning:

Used resources:

- [1] <http://drivenbynostalgia.com/>
- [2] <http://ruh.li/AnimationVertexSkinning.html>
- [3] <http://ogldev.atspace.co.uk/www/tutorial38/tutorial38.html>
- [4] <https://www.youtube.com/watch?v=F-kcaonjHf8>

At first we loaded the bone indices and bone weights from the collada file in the Modell class. We used assimp to load our models, therefore we could access the bone informations directly from the aiScene. In the Animator the global transformation matrix is calculated and the bone transformations are updated. We get the bone matrices from the Animator and pass them to the shader. In the shader the transformation Matrix is calculated and the final positions and normal are determined. The animator class was taken from [1].

Complex Objects:

We used Bezier curve based Meshes for creating the stag beetle (Hirschkäfer). Also we used a complex cowboy Model from the internet [4]. For loading the models we used assimp. The models were created with Blender.

Shadow Mapping:

Used resources:

- <http://ogldev.atspace.co.uk/www/tutorial23/tutorial23.html>
- <http://ogldev.atspace.co.uk/www/tutorial24/tutorial24.html>

The light source can be controlled by pressing 4. To get back to the default camera, you have to press 3.

Particle Effect:

Used resource:

- <http://www.opengl-tutorial.org/intermediate-tutorials/billboards-particles/particles-instancing/>

The decorative particle effect can be found on the near left border of the field.

Printing text on the game screen:

Used resource:

- <https://learnopengl.com/#!In-Practice/Text-Rendering>

To follow that guide, the library freetype had to be implemented. Two different fonts are included in the game:

digital-7.ttf for printing the score and the remaining lifepoints.

Crickx.otf for printing help and performance stats.

Gravity:

If all stones under a stone are eaten, that stone will fall down to the next stone or to the ground. Beetles on a stone also fall down, if their walking ground is deleted.

Controls

Key	Effect
Arrow keys	Moving falling food in x and y direction
y	Rotating stone in one axis (discrete positions)
x	Rotating stone in the second axis
c	Rotating the world left
v	Rotating the world right
Space	Accelerate the falling speed of the stone
ESC	Quit game

All objects in the scene are textured and illuminated. The types of objects are:

- The attacking animals – animated character meshes (created with Blender)
- The world in which the game takes place – a big mesh with simple Tree meshes on it
- The Tetris stones – textured meshes

Effects:

- **Shadow Maps (with PCF) 1.5**
- **Vertex Skinning (2)**
- **CPU - Particle System (0.5)**