Computació Gràfica i Multimèdia

Work Package 4

Màster en Enginyeria Informàtica

2021/22 year

Project description

This year we will develop a project devoted to the creation of a "race in labyrinth" 3D videogame.

Work plan for the forth work package

The forth work package is composed of the following tasks:

- Inclusion of lighting effects (60%)
- Provide the characters a functionality to shoot bullets (40%)
- Optional parts

Task 1. Inclusion of lighting effects

We will add lighting effects to our game. Some requirements and tips are given next:

- **Requirement.** Include a light source providing ambient light. The intensity of this light source has to be low. This light source is required for avoiding that polygons not lighted by some other light source appear completely black.

- **Requirement.** Include a directional light source in front of the main character. In this way we will simulate it carries lights.

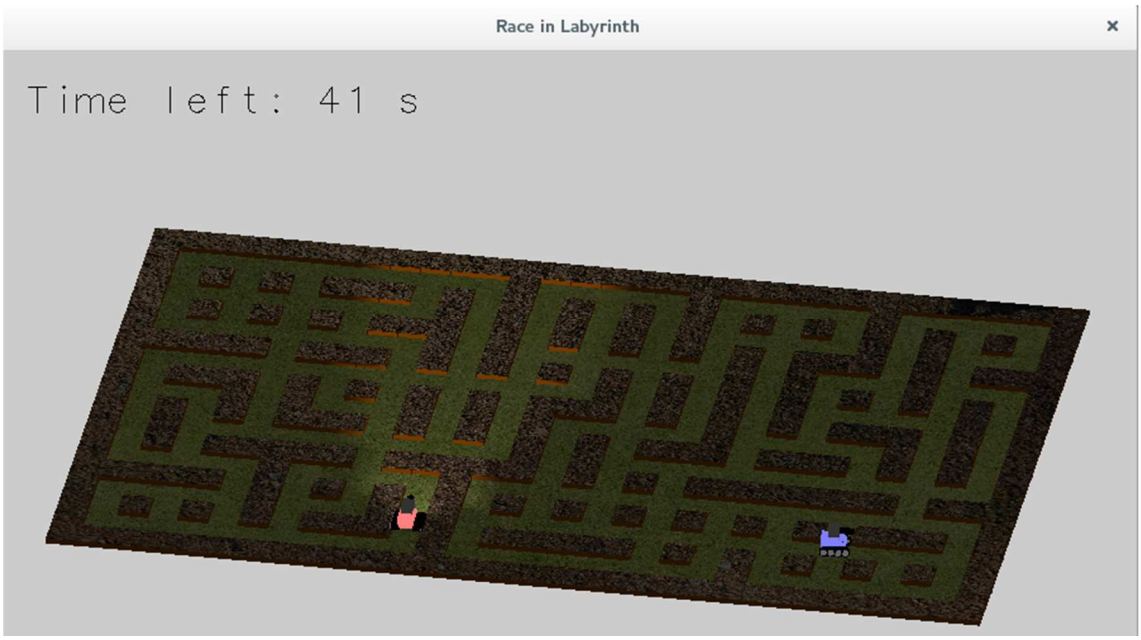
- **Optional:** Add lights to the enemy character.

- So as to mix texture mapping and lighting effects, the texture mode has to be changed from GL_REPLACE to GL_MODULATE. You are recommended to consult an OpenGL reference to learn the difference between both modes.

- When drawing textured polygons in lighting mode, set the material (procedure "glMaterialfv") to (1.0,1.0,1.0,1.0).

- When implementing lighting effects, remember to carefully set the normal vector at polygon vertices.

An example is next shown:



Task 2. Provide the characters a functionality to shoot bullets

Add a functionality so that the tanks can shoot a bullet. If a shot bullet collides against some tank, it disappears from the map during two seconds. After that, it is placed at its starting point.

Task 3. Optional parts

The following tasks are optional, but are mandatory for those students aiming to opt to a "with honors" mark (matrícula d'honor). Take into account that, from University regulations, in our subject, only one student can receive that mark. Each task provides an extra point to work package 4 (so that it may sum up to 12 points).

- Provide advanced intelligence to the enemies. You should use some of the techniques studied in the "Intelligent systems" subject.

- Make a joystick employing the technology studied the "Embedded and ubiquitous systems" subject, so that the main character can be managed by means of it.

The project with the optional tasks will be presented during the January-February exams period. You will receive an e-mail indicating the place, date, and time.

Deadline

This activity (up to task 2) has to be handed in before **December, 1st, at 18.00h**, by uploading a zipped file containing the source code through the corresponding activity of the virtual campus. Include only source code files, a "Makefile" script which compiles the project in a Linux console and the downsampled JPG texture files.