Computació Gràfica i Multimèdia

Work Package 3

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 third work package

The third work package is composed of the following tasks:

- Plot the map in 3D
- Plot the characters as tanks
- Print text to the screen
- Inclusion of texture mapping

Task 1. Plot the map in 3D

Some remarks are given next:

- It has to be possible to interactively modify the observer position employing the keyboard. The user has to be able to position the viewer at any point around the scene (even below it).
- Set polygon drawing mode so that it only fills the polygons that are facing towards the observer. This will help you to identify polygons that are not properly orientated. This can be done through the following procedure calls:

```
glPolygonMode(GL_FRONT,GL_FILL);

glPolygonMode(GL_BACK,GL_LINE);
```

- Use a large graphical window.

Task 2. Represent the characters as tanks

Some remarks are given next:

- The procedure `gluCylinder` can be used to plot the wheels and the cannon.

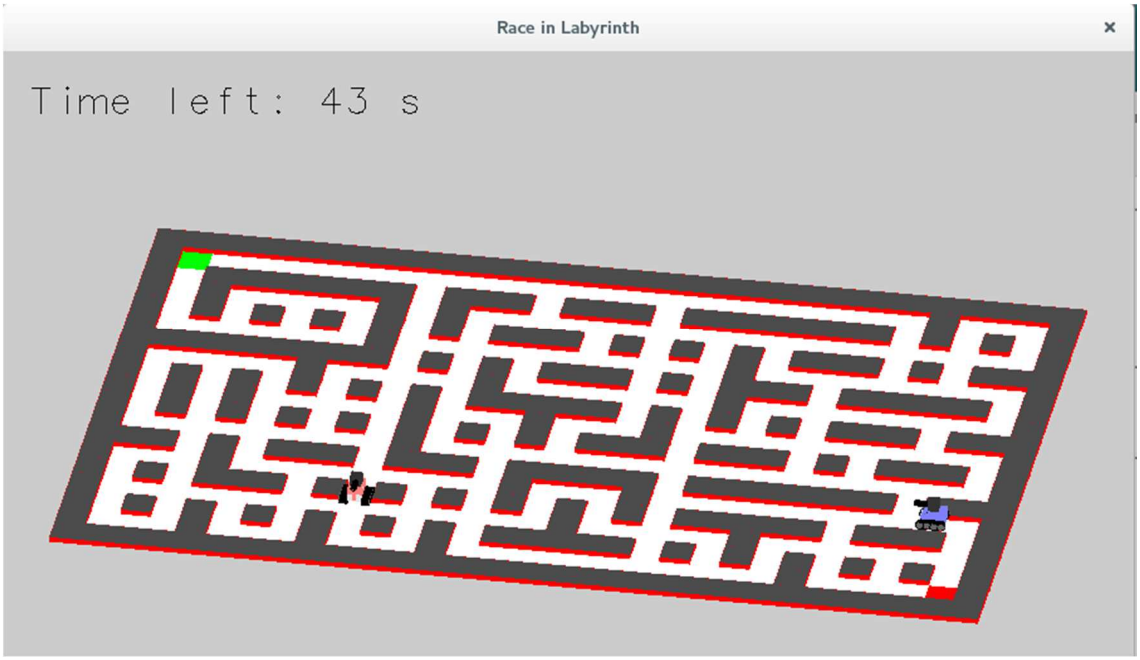
- Take into account that a tank moves on tracks so that it can only move forward (we will not allow backward movement). For moving left, right or back, a previous turning movement around its vertical axis is needed.
- Implement the turning movement also in variable frame rate.

Task 3. Print text to the screen

We will set some maximum time for completing a game level. Print some text to the screen indicating the amount of time left.

- Procedure `glutStrokeCharacter` can be used.

An example is next shown.



Task 4. Inclusion of texture mapping

Provide texture to some of the polygons of the scene. Not all the polygons are required to be textured. An example is next shown.

Deadline

This activity is recommended to be handed in before October, 14th**, at 18:00h**, by uploading a zipped file containing the source code through the corresponding activity of the virtual campus. Include only ".c", ".cpp" and ".h" files together with a "Makefile" script which compiles the project in a Linux console. Do not forget to include ".jpg" texture files.