Final Project

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Modeling of Timmy Turner's each

Project objective

The student must apply and demonstrate the knowledge acquired during the entire course of Computer Graphics 2022-02.

Scope

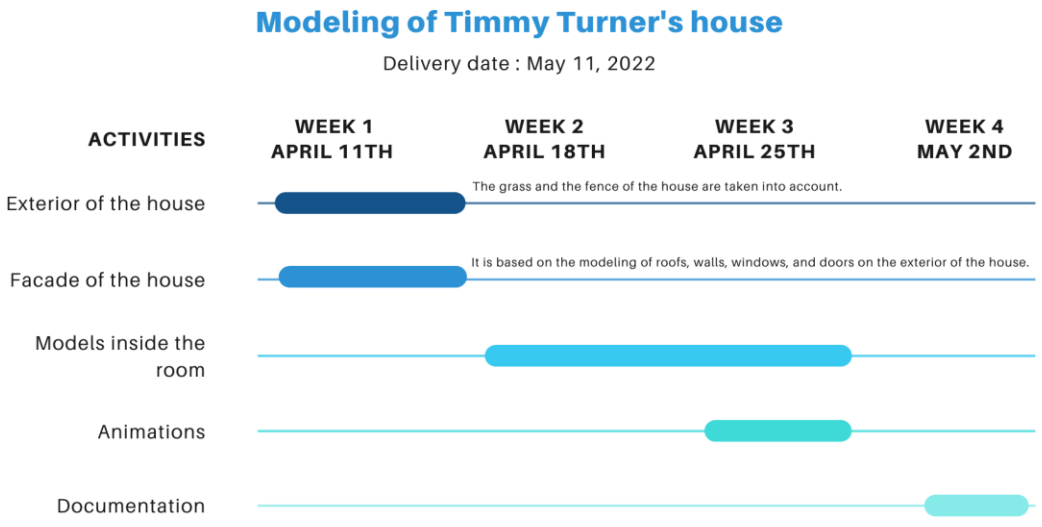
The student must select a facade and a space that can be real or fictitious and present reference images of these spaces for their 3D recreation in OpenGL.

In the reference image should be displayed 7 objects that the student will recreate virtually and where these objects should be as close as possible to the reference image, as well as its ambience.

Limitations

Because the goal of the project was to give the most realism to the setting, I chose to make the room and house of the character based more than in the official cartoon in the movie, where homage is made to these characters in real life, so in most cases the colors and factors will change to give them more realism.

Gantt Chart



Documentation

The development of the project is located in the devel branch, the final view can be visualized from the master branch.

All modeling in Maya is located in:

315344105_ProyectoFinal_Gpo09|Modelados_Unicos

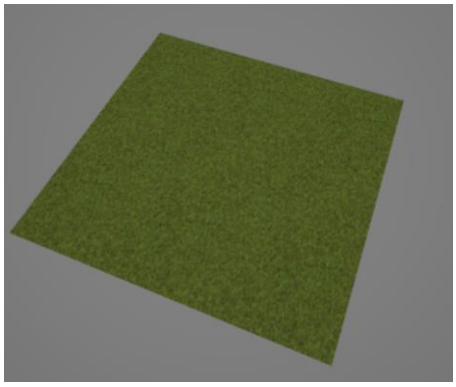
All textures used can be found in:

315344105_ProyectoFinal_Gpo09|Textures

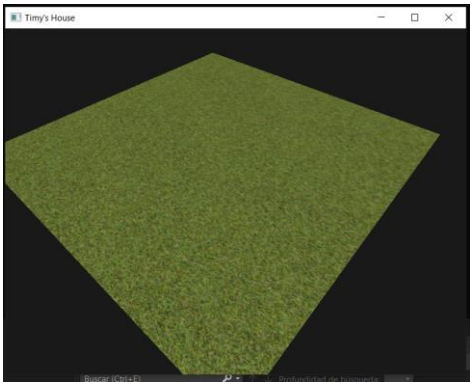
Exterior elements

Garden

Maya



OpenGL



Defined as:

```
Model Grass((char*)"Models/Grass/grass.obj");
```

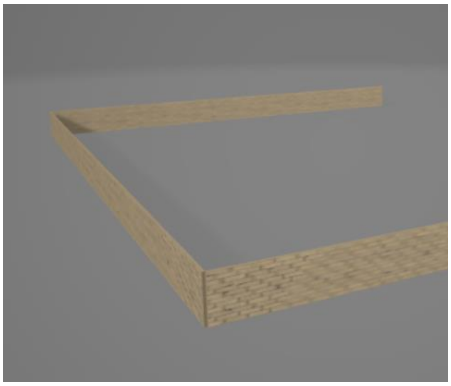
Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Grass.Draw(Anim);
glBindVertexArray(0);
```

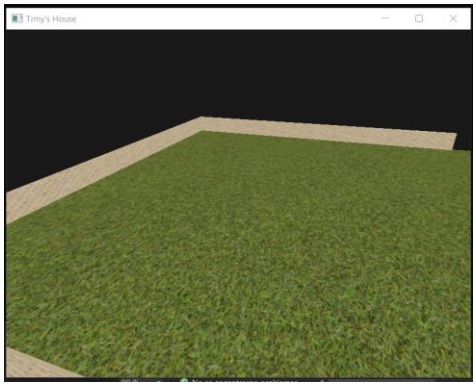
Model without animation

Fence

Maya



OpenGL



Defined as:

```
Model Fence((char*)"Models/Fence/fence.obj");
```

Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Fence.Draw(Anim);
glBindVertexArray(0);
```

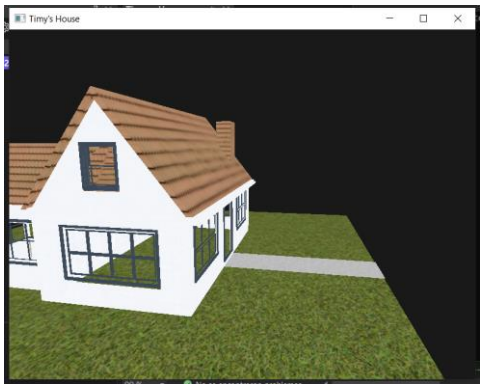
Model without animation

Elements on the facade of the house

Walls, windows and ceilings

Maya

OpenGL



Defined as:

```
Model House((char*)"Models/House/house.obj");
```

Example of use:

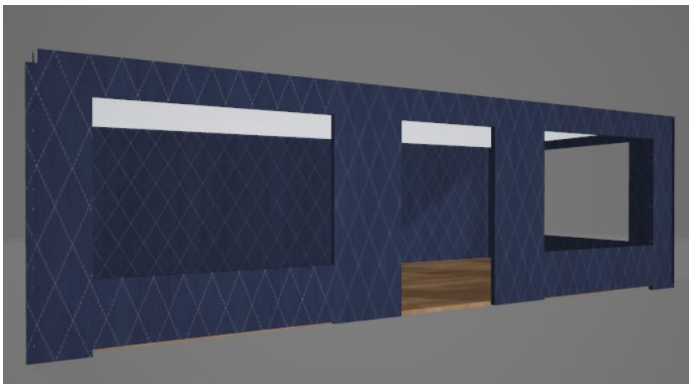
```
model = glm::mat4(1);
```

```
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
House.Draw(Anim);
glBindVertexArray(0);
```

Model without animation

Interior of the room

Maya



OpenGL

Defined as:

```
Model WallInside((char*)"Models/WallInside/wallinside.obj");
```

Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
WallInside.Draw(Anim);
glBindVertexArray(0);
```

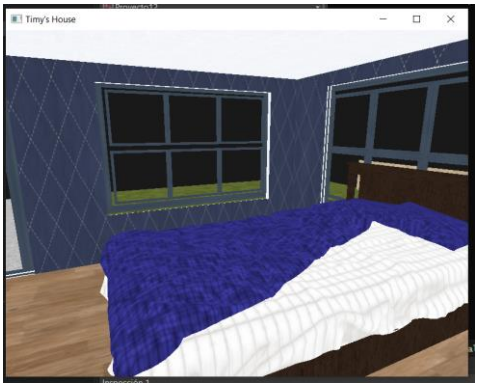
Model without animation

Modelos dentro del cuarto

Bed

Maya

OpenGL



Defined as:

```
Model Bed((char*)"Models/Bed/bed.obj");
```

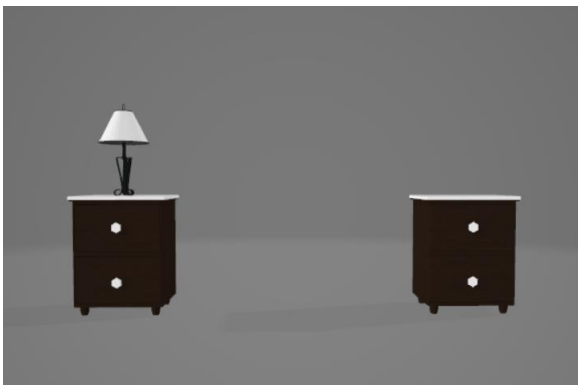
Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Bed.Draw(Anim);
glBindVertexArray(0);
```

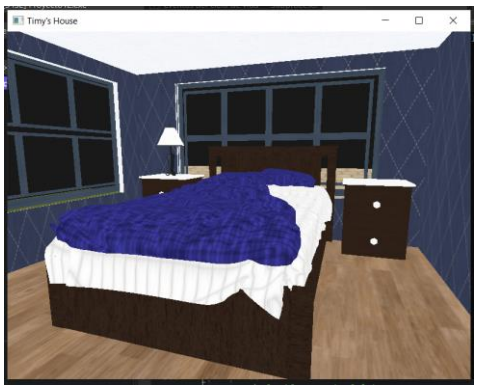
Model without animation

Bookcase with lamp

Maya



OpenGL



Defined as:

```
Model Shelf((char*)"Models/Shelf/shelf.obj");
```

Example of use:

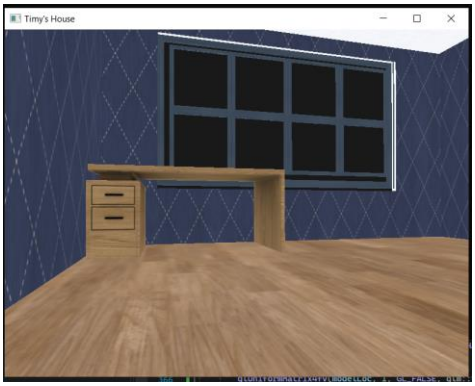
```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Shelf.Draw(Anim);
glBindVertexArray(0);
```

Model without animation

Desk

Maya

OpenGL



Defined as:

```
Model Table((char*)"Models/Table/table.obj");
```

Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Table.Draw(Anim);
glBindVertexArray(0);
```

Model without animation

Paintings

Maya

OpenGL

Defined as:

```
Model Painting((char*)"Models/Painting/painting.obj");
```

Example of use:

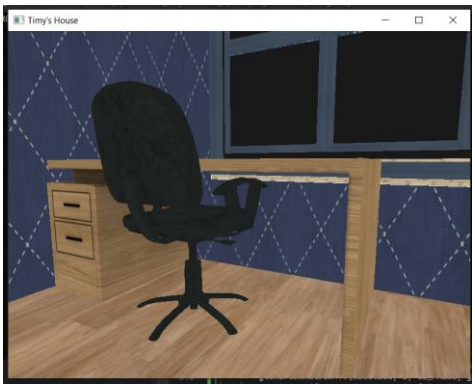
```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Painting.Draw(Anim);
glBindVertexArray(0);
```

Model without animation

Chair

Maya

OpenGL



Definido como:

```
Model Chair((char*)"Models/Chair/chair.obj");
```

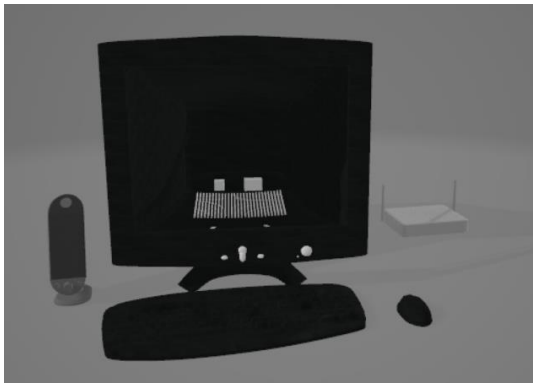
Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
Chair.Draw(Anim);
glBindVertexArray(0);
```

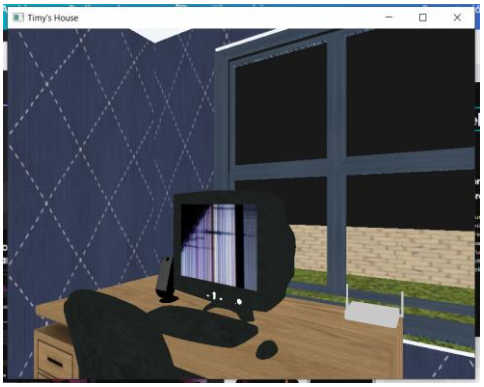
Model without animation

Computer

Maya



OpenGL



Defined as:

```
Model Computer((char*)"Models/Computer/computer.obj");
```

```
            Model
BrokenComputer((char*)"Models/Computer/broken_computer.obj");
```

Example of use:

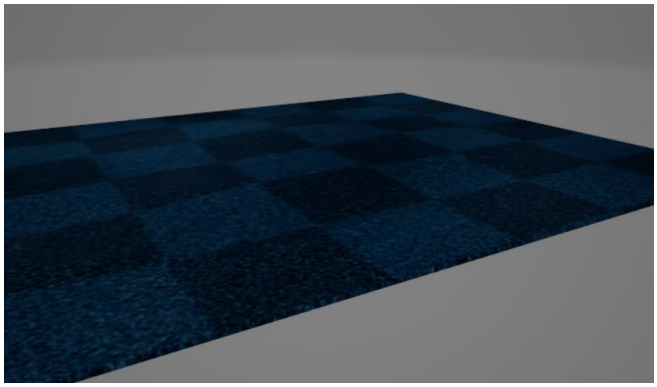
```
            model = glm::mat4(1);
            glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
            Computer.Draw(Anim);
            glBindVertexArray(0);

            Anim.Use();
            tiempo = glfwGetTime();
            modelLoc = glGetUniformLocation(Anim.Program, "model");
            viewLoc = glGetUniformLocation(Anim.Program, "view");
            projLoc = glGetUniformLocation(Anim.Program, "projection");
            // Set matrices
            glUniformMatrix4fv(viewLoc, 1, GL_FALSE, glm::value_ptr(view));
            glUniformMatrix4fv(projLoc, 1, GL_FALSE,
glm::value_ptr(projection));
            glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
            glUniform1f(glGetUniformLocation(Anim.Program, "time"), tiempo);
```

Modelo con animación de ondas en la pantalla rota

Carpet

Maya



OpenGL

Defined as:

```
            Model Carpet((char*)"Models/Carpet/carpet.obj");
```

Example of use:

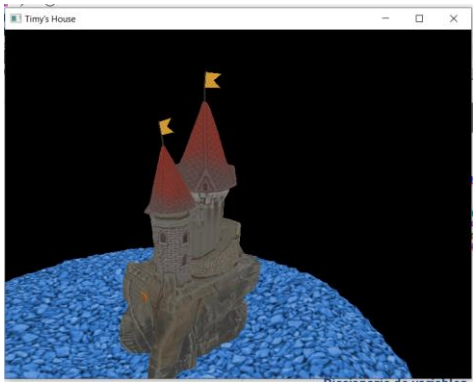
```
            model = glm::mat4(1);
            glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
            Carpet.Draw(Anim);
            glBindVertexArray(0);
```

Model without animation

Fishbowl

Maya

OpenGL



Defined as:

```
Model FishHouse((char*)"Models/FishHouse/fish_house.obj");
```

Example of use:

```
model = glm::mat4(1);
glUniformMatrix4fv(modelLoc, 1, GL_FALSE, glm::value_ptr(model));
FishHouse.Draw(Anim);
glBindVertexArray(0);
```

Model without animation

Dictionary of variables

Grass: refers to the pattern of the grass.

House: Refers to the exterior of the house with the pardes, roofs, windows, path to the exterior and the shape of the chimney.

Fence: Refers to the fence on the outside of the house.

WallInside: Refers to the modeling of the walls of Timmy Turner's room.

Bed: Refers to the bed in the room

Shelf: Refers to the walls on the side of the bed, which also have a lamp on one side and a fish tank on the other side.

FishHouse: Refers to the fish tank.

Table: Refers to the desk inside the room

Chair: Refers to the desk chair

Computer: Refers to the computer equipment, table and speaker on the desk

BrokenComputer: Refers to the computer screen that simulates a broken computer screen

Carpet: refers to the carpet under the bed

Door: Refers to the door of the house and the room.

Conclusions

I would have liked to have a little more time to place several items inside the room, I did not have the opportunity to place animations as they had planned due to time issues, however with this project the ease I got to model was very good compared to the beginning of the course, the modeling in maya and opengl was much simpler and understandable after all the practices that helped us to digest a little faster all the tools you have. I am happy to have achieved a model where I understood almost all the creation process, although I would have liked to put a little more effort to finish it as I had planned because even the texturing of the subject I chose had to change completely because it was not going to be noticed so much if I followed a cartoonist model.