Technical University of Cluj-Napoca
Faculty of Automation and Computer Science
Department of Computer Science

2017/2018

Graphical Processing Systems

Photorealistic 3D scene using OpenGL

Lecturer: Prof. Ioan Salomie
Teaching Assistant: Claudia Pop

Student: Acu D. Raul-Mihai
Group: 30425

Table of Contents

1. Subject specification

The subject of the project consists in the photorealistic presentation of 3D objects using OpenGL library. The user directly manipulates by mouse and keyboard inputs the scene of objects.

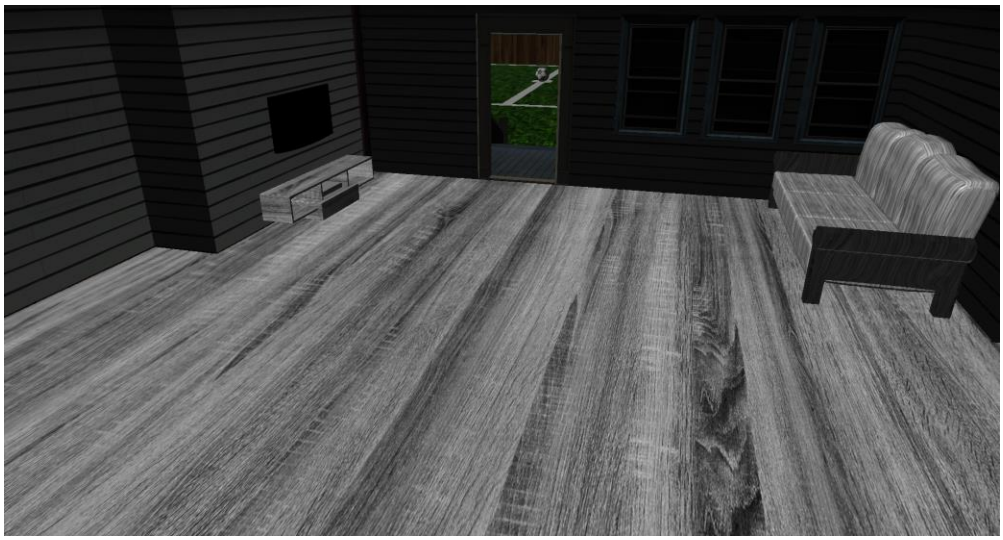
2. Scenario

The implemented scene describes a house having a courtyard with a soccer field as a playing ground allowing the user to interact with the ball.

Scene and objects description, functionalities

General overview

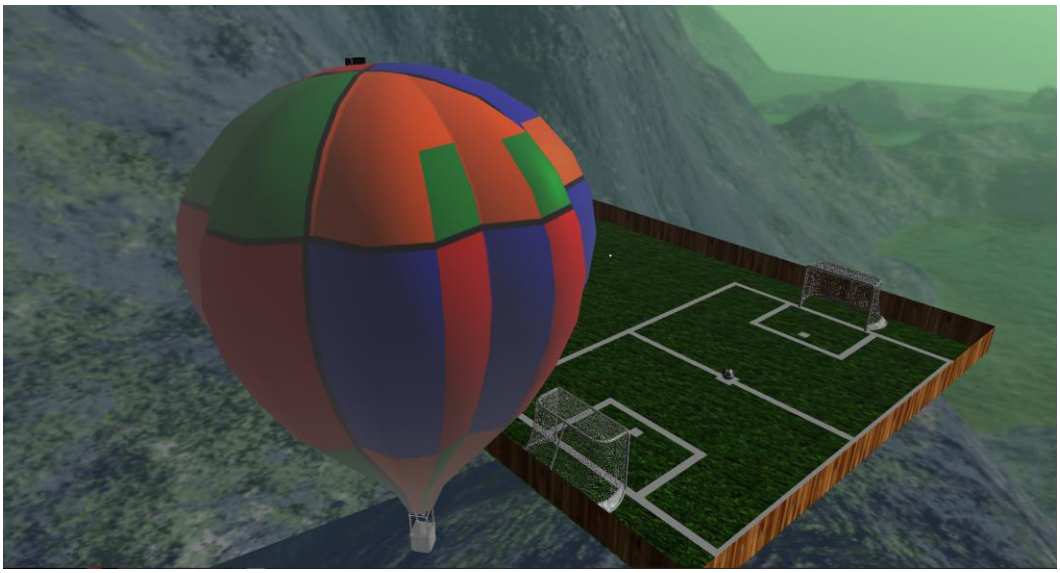
Inside the house



Shadow example of a tree

Soccer field

Hot air balloon and fog example



3. Implementation details

Functions and special algorithms

Object collision / bounding box

We can move the ball across the field, but once we cross it`s outer lines the ball resets to the original point.

Floating hot air balloon moving around the scene.

By using some rotations and translations, the hot air balloon rotates around the center of the scene and it`s visibility changes due to the fog.

4. Graphical user interface presentation and user manual

- Using the arrow keys, we can simulate a soccer gameplay.

• By pressing the Z, X and C we can see the wireframe, filled and points display.

• Control the position of the balloon with the Q and E keys.