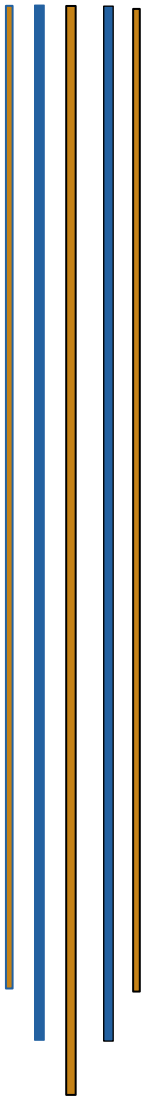
Universidad Nacional Autónoma de México



Facultad de Ingeniería

Ingeniería en Computación

Computación Grafica e Interacción Humano Computadora

Final Project – User Manual

Student:

ID number: 319095706

Group 05

Date: 25/11/2025

Index

Introduction

This project consists in the development of a 3D rendering program that recreates the façade and two rooms of the main character's house from the animated series Family Guy. For its implementation, the OpenGL graphics API was used, integrating 3D models previously created in Autodesk Maya and exported in .obj format, which were then incorporated into the program's virtual environment.

The purpose of this manual is to explain the correct way to use this program and take full advantage of the functionalities it offers so that the user can interact with the scene. Throughout the document, it describes how to access and run the program, as well as the different ways to navigate and manipulate the scene.

Objective

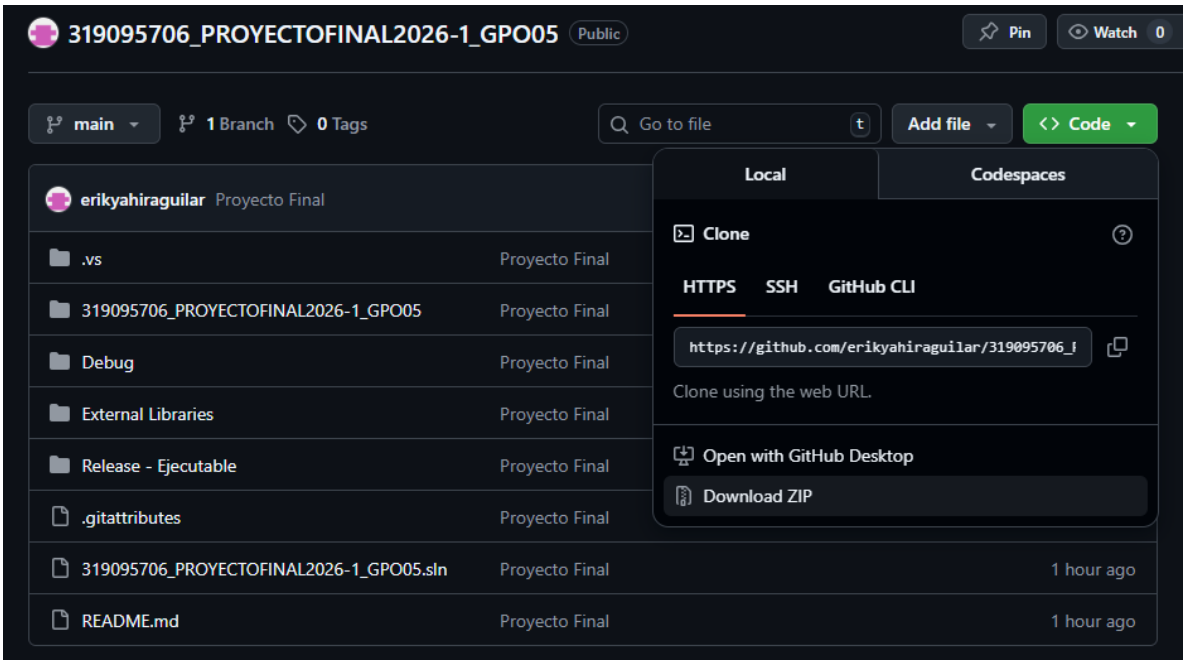
To develop and document a 3D rendering program, based on OpenGL and integrated with models created in Autodesk Maya, that recreates the façade and a room of a desired space, and provides the user with a usage guide that enables them to access, run, and correctly interact with the elements of the scene.

Installation and Execution

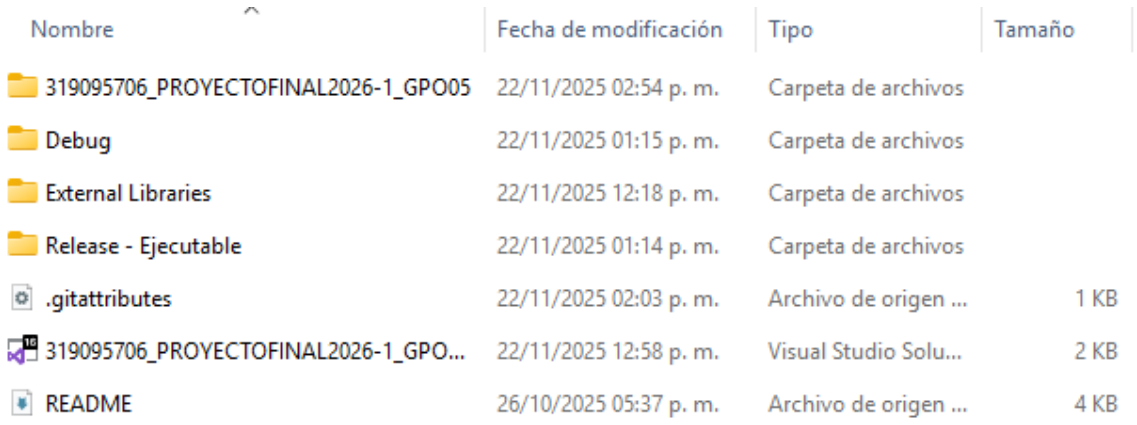
To access the program, you must go to the following GitHub repository:

https://github.com/erikyahiraguilar/319095706_PROYECTOFINAL2026-1_GPO05.git

There you will find the project; once in the repository, click the "Code" button and then click the "Download ZIP" button.



After downloading it, extract the contents using any decompression utility.



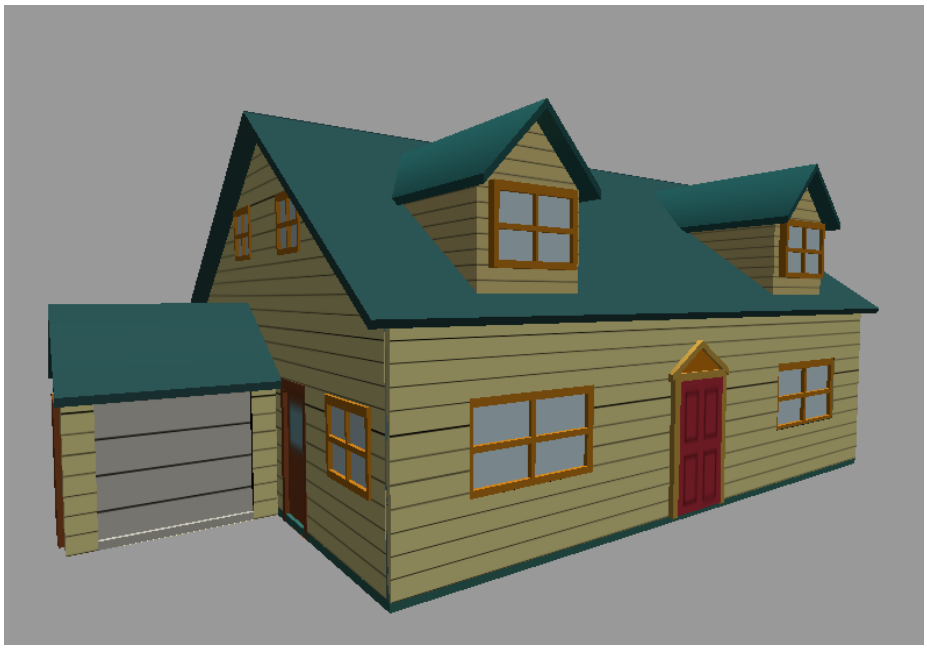
Open the folder named “Release - Ejecutable” and run the executable “319095706_PROYECTOFINAL2026-1_GPO05” to launch the program.

Nombre	Fecha de modificación	Tipo	Tamaño
Models	22/11/2025 12:18 p. m.	Carpeta de archivos	
Shaders	22/11/2025 12:18 p. m.	Carpeta de archivos	
SkyBox	22/11/2025 12:18 p. m.	Carpeta de archivos	
319095706_PROYECTOFINAL2026-1_GPO05	22/11/2025 01:10 p. m.	Aplicación	262 KB
319095706_PROYECTOFINAL2026-1_GPO...	22/11/2025 01:10 p. m.	Program Debug D...	1,996 KB
assimp-vc140-mt.dll	26/10/2025 05:37 p. m.	Extensión de la apl...	15,705 KB
glew32.dll	26/10/2025 05:37 p. m.	Extensión de la apl...	381 KB

Results

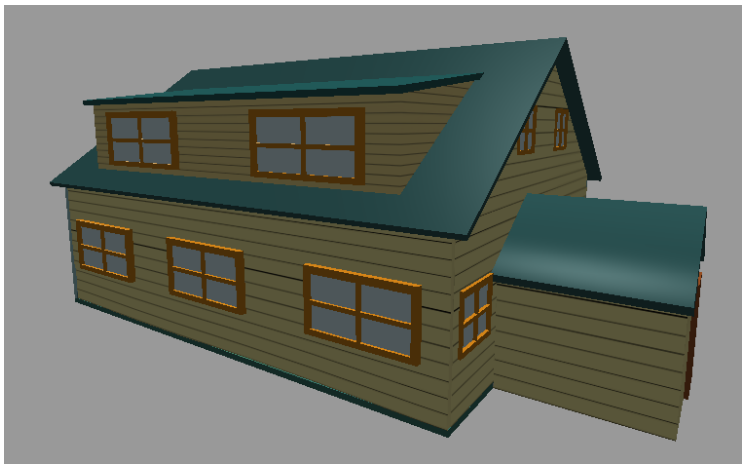
For this project, the house of the Griffin family from the animated series Family Guy was used as a reference. Here, original images from the cartoon can be seen and compared with screenshots of the recreation in OpenGL.

Side-view house reference



Side-view house recreation

Side-view house reference



Side-view house recreation

Living room reference

Living room reference

Living room reference

Living room recreation

Living room recreation

Living room recreation

Living room recreation

Kitchen reference

Kitchen reference

Kitchen recreation

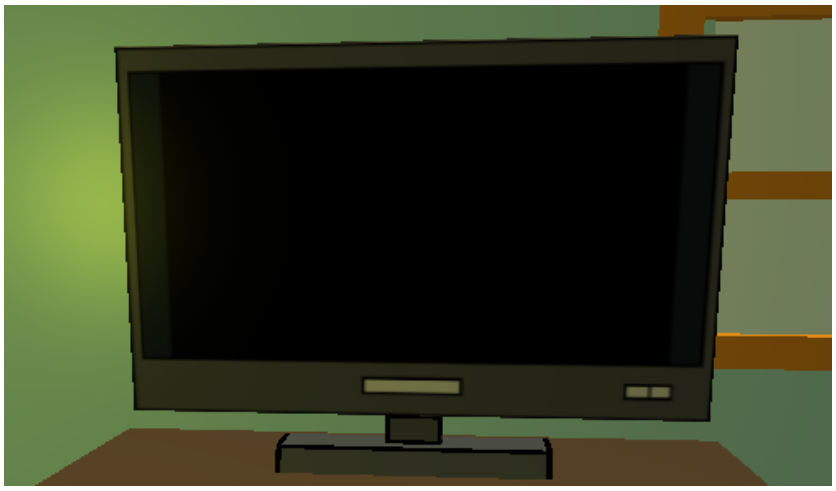
Kitchen recreation

Kitchen recreation

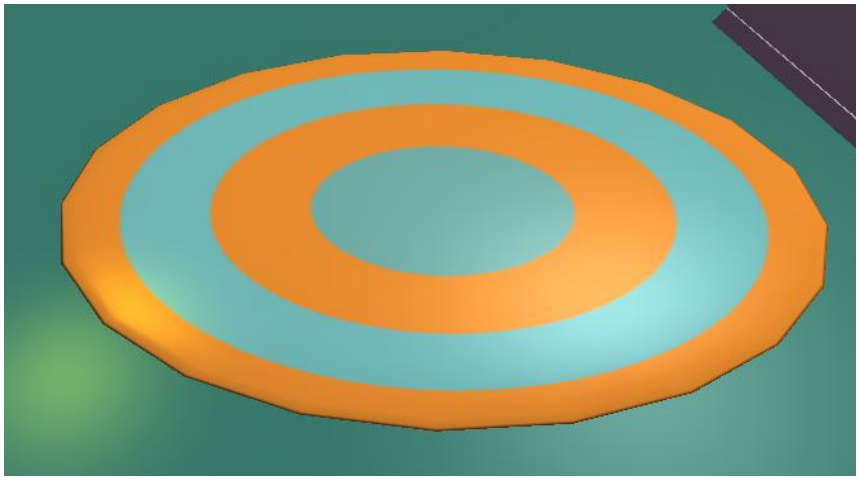
Objetos

Sofa 1 (1 seat)

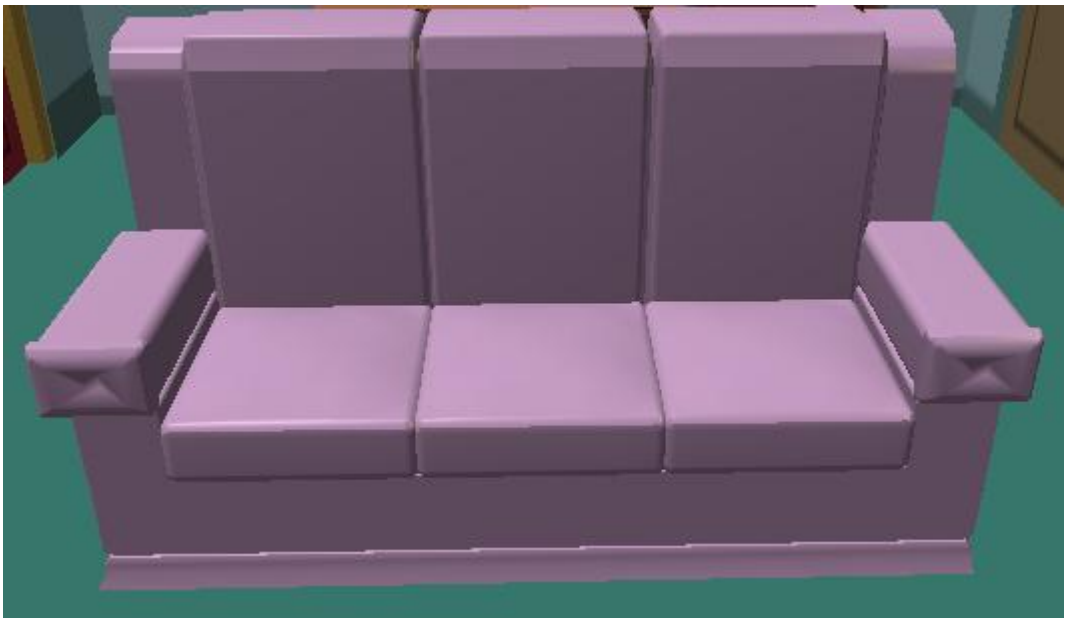
Television cabinet



Television



Rug



Sofa 2 (three seats)

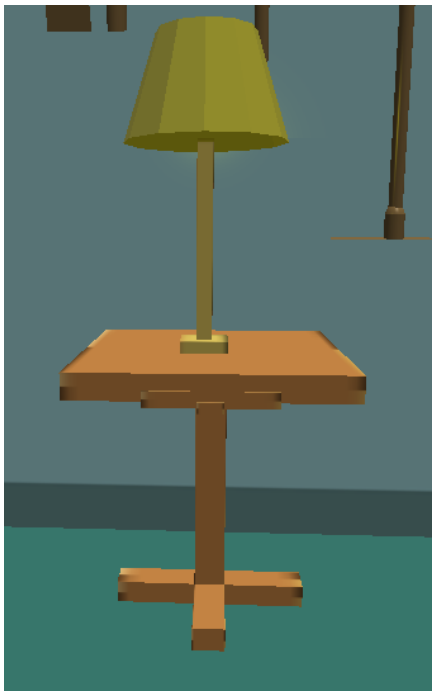
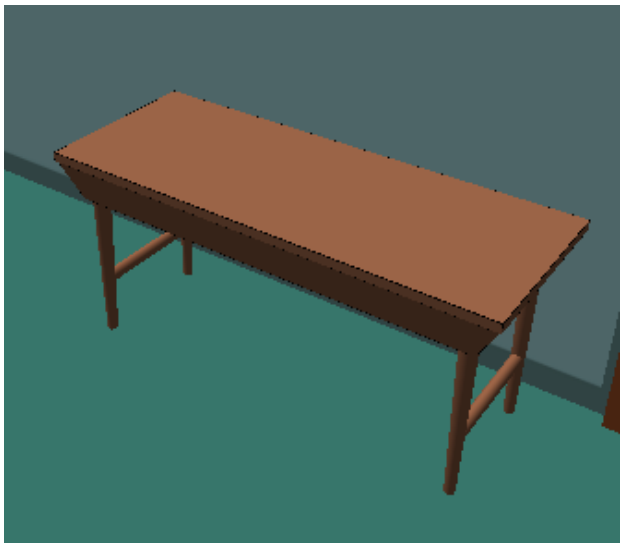


Table holding the lamp / Lamp

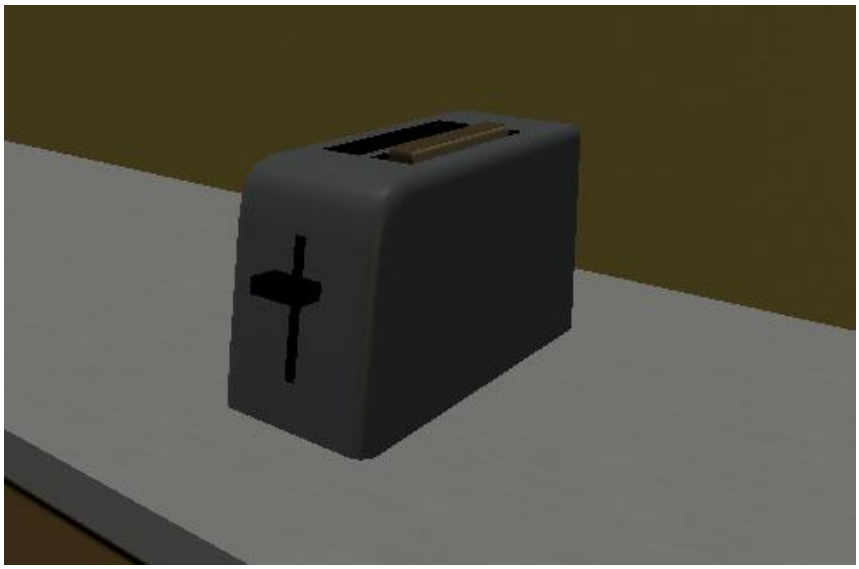


Rectangular table

Refrigerator

Stove

Microwave



Toaster

Fitted kitchen

Interactions / Animations.

By using certain keys and the computer mouse, you can interact with the synthetic camera to control the “view” of the environment displayed in the pop-up window after running the project.

Mouse:

This controls the viewing direction of the camera. Wherever the pointer is located, it is as if we were directing our gaze toward that specific point.

To use this interaction, simply move the mouse toward where you want to look or where you want to move, since it must be complemented with the keyboard interaction to move the camera’s position.

Camera:

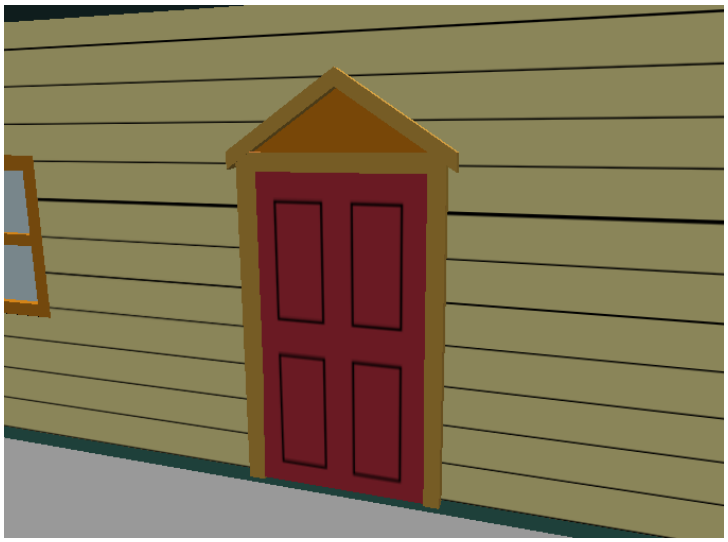
Keys that manipulate the camera position:

- If the ‘W’ key or the ‘↑’ key is pressed, the camera will move forward.
- If the ‘S’ key or the ‘↓’ key is pressed, the camera will move backward.
- If the ‘A’ key or the ‘←’ key is pressed, the camera will move to the left.
- If the ‘D’ key or the ‘→’ key is pressed, the camera will move to the right.

The computer mouse guides the direction in which the camera is pointing.

Open/Close main door:

Key	Animation
P	The main door rotates 90° inward and returns to its original position, simulating opening and closing the door with the same key.

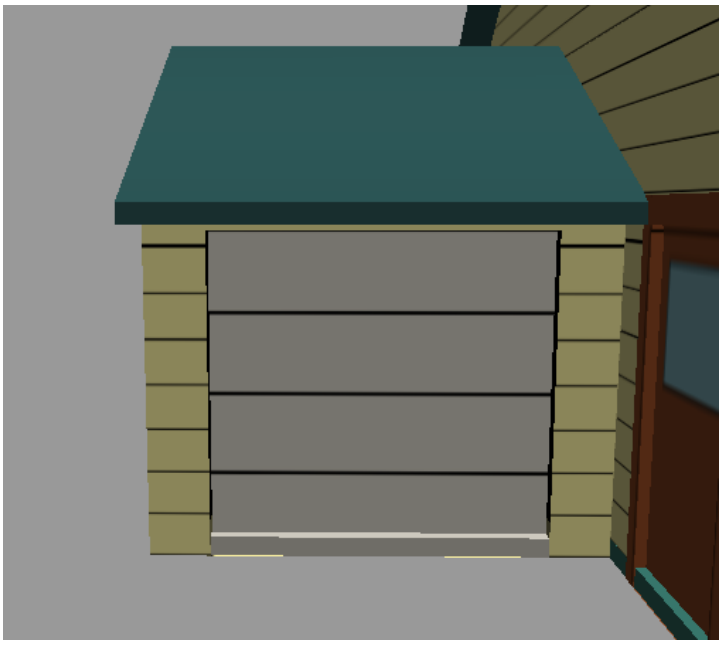


Door closed

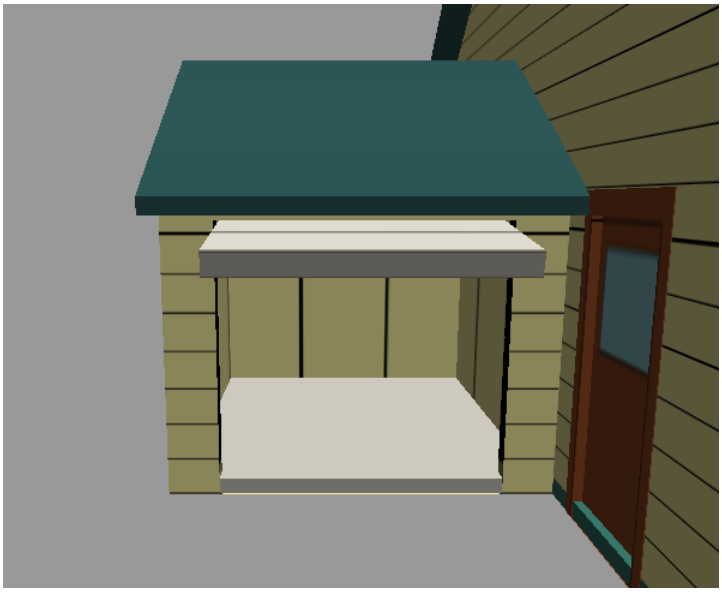
Door open

Open Garage / Close Garage:

Key	Animation
O	The garage door opens upward, rotating on its axis and moving along the Y and Z axes, simulating the door being stored inside the garage. It is closed with the same key.



Garage closed



Garage open

Turn On Lamp:

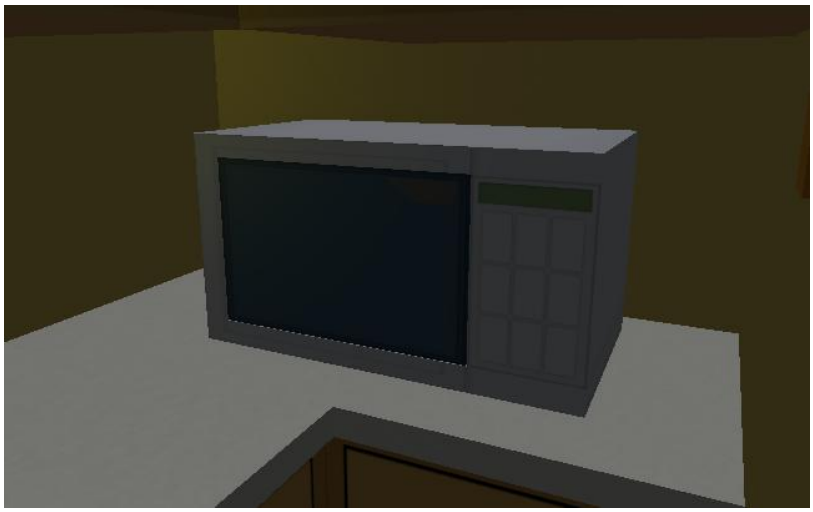
Key	Animation
Spacebar	The point light located inside the lamp will begin to emit yellow flashes, simulating the lamp turning on and dimming. The same key is used to turn it off.

Lamp Off

Lamp On

Open/Close microwave:

Key	Animation
U	The microwave door rotates −90° and then returns to its original position, simulating opening and closing the microwave with the same key.

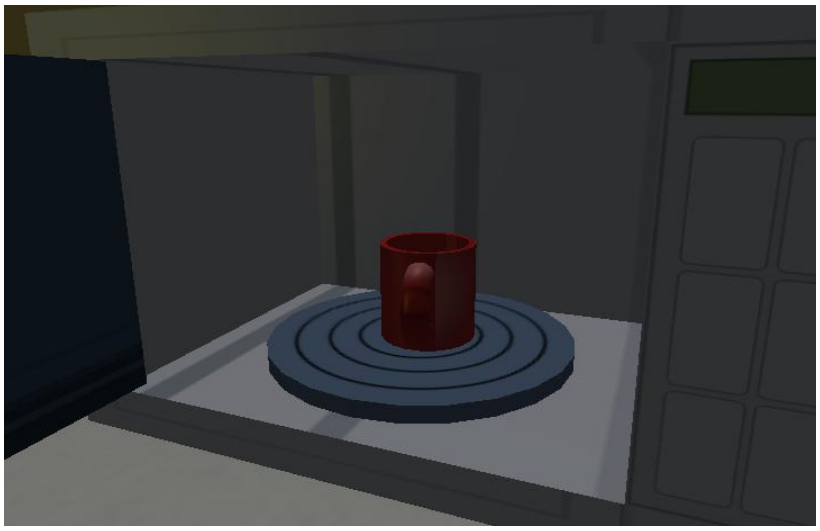


Door closed

Door open

Mug rotation

Key	Animation
U	With the same key, the mug starts to rotate, simulating the motion inside the microwave; pressing the same key again stops the rotation.



Mug rotation

Toast jump in the toaster:

Key	Animation
T	The toast jumps upward, makes a full 360° spin in the air, and falls back to its original position.

Spinning toast

Spinning toast

Toaster with toast

These are all the interactions and animations available in the scene.

Ending the Program.

To end the program, simply press the “Esc” key.