Universidad Nacional Autónoma de México
Faculty of Engineering

User Manual: GothamCity

Laboratory of Computer Graphics and Human-Computer Interaction

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Índice

1. About the project

The main links to the project files are the following:

- Repository: `https://github.com/Ari3839/Gotham.git`
- Log: `https://saber-eyebrow-039.notion.site/Bit-cora-de-Proyecto-b106fc2e473b4a699981fdb5`

There you will find all the necessary files for the correct operation of the project.

2. Run the project

From the GitHub repository you must download the source code files, that is, all the header files (.h), the files of the classes used in the project (.cpp), the folders corresponding to the models, the textures, the shaders, the music, the .dll files, the two text documents, and the corresponding 'include', 'gln' and 'lib' folders, without all these folders the project may not run.

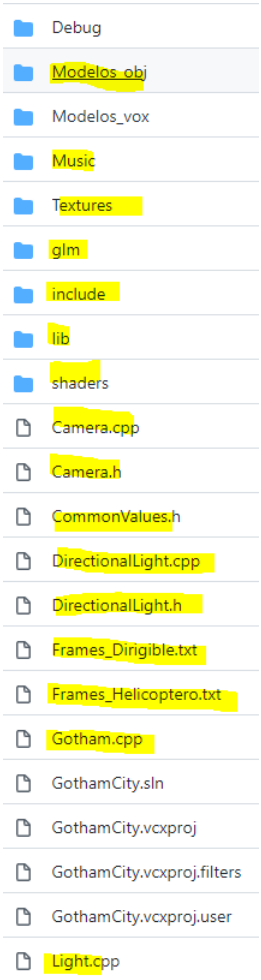

Figura 2: Source files

Also, in the repository you will find the files corresponding to the executable (If you cannot access them from the link, you can find them in the 'Debug' folder of the source code).

Files with .exe, .ilk, and .pdb extensions need to be in the same folder as the source code files mentioned above.

Figura 3: Execution files

Once you have all the files, you can run the application, that is, the file with the .exe extension, by double-clicking or right-clicking and running.
NOTE : Your Antivirus may take a moment to perform a review of the executable, because it is an external application, don't worry, it will let you run without problems when the process is finished.
Once the application is started, two windows will appear, one corresponding to the terminal that will show informative messages during your use of the project, and the window corresponding to the application (titled Gotham city), it is in this second window where you will interact with the project.

2.1. Speakers or headphones

Because audio was included in the project, you need to have an audio output on your equipment, for example speakers (whether internal or external) or headphones, however, if you do not have any such device, you can proceed with the execution of the program, it will only be shown in the terminal that a device to play the audio was not found.

Figura 4: Audio device

3. Displacement

To perform the movement on stage, use the mouse to rotate the camera and the following keys on your computer to move forward:

- W: forward movement.
- S: backward movement.
- A: movement to the left:
- D: movement to the right.

4. Change of cameras

When starting the program, the floor camera will be displayed.

Figura 5: Floor camera

If you wish to observe the scenery from above, you can press the '2' key to switch to the aerial camera.

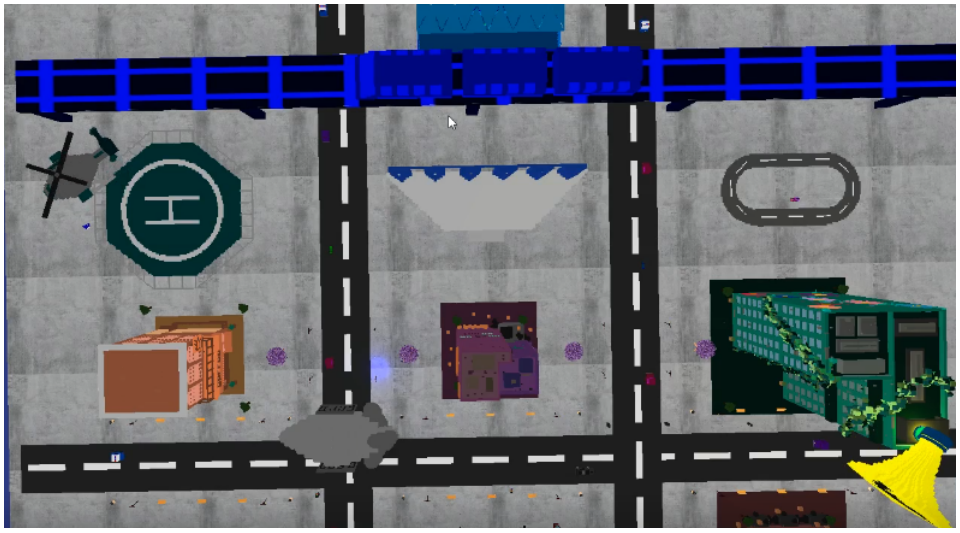

Figura 6: Aerial camera

You can go back to the floor camera again with the ’1’ key and switch views whenever you want.

5. Activate animations

5.1. Avatar: Timothy Jackson Drake

This character is positioned in the center of the stage.

To observe its animation, it is necessary that you position yourself in a suitable place to observe the character, and press the ’7’ key. You can stop the avatar’s movement at any time with the ’8’ key, or wait for it to finish its actions.

Once the character returns to its original position, you must press the ’7’ key again to see the animation again.

Figura 7: Tim (avatar)

5.2. Batmobile

Like the main character, this object has an animation that is activated with the '5' key and stops at any time with the '6' key.

RECOMMENDATION : Do not let the Batmobile stand in front of the avatar, as the avatar's animation might not show up as well in this case.

Figura 8: Batmobile

5.3. Jason Peter Todd AKA Red Hood

This character is positioned in the upper right corner of the stage, according to the position in which you start the program.

To watch its animation, you need to stand at a close distance from it with the ground camera. You can stop the avatar's movement at any time by moving away from it.

NOTE : Do not move too far away from the character when he is turning, he could end up in an inappropriate position for the rest of the animation, and you would have to wait for him to do the whole movement again to see it correctly.

RECOMENDATION : Don't turn up your computer's audio too much, although the background music is ambient and low intensity, the animation music is louder and could be annoying if it's too loud, especially that of this character.

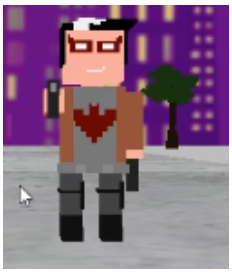

Figura 9: Red Hood

5.4. Richard John Grayson AKA Nightwing

This character is positioned in the lower left corner of the stage, according to the position in which you start the program.

To watch its animation, you need to stand at a close distance from it with the ground camera. You can stop the avatar's movement at any time by moving away from it.

NOTE : Do not move too far away from the character when he is spinning, he could end up in an inappropriate position for the rest of the animation, and you would have to wait for him to do the whole movement again to see it correctly.

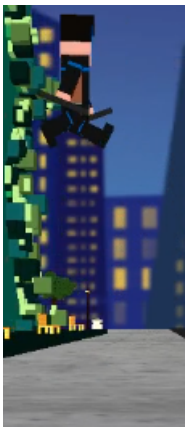

Figura 10: Nightwing

5.5. Spothlight show

This light show can be seen on the gray stage that is positioned between the building that Tim (the avatar) climbs and the train. The movement of the lights is better appreciated with the aerial camera.

To start the playback of the show, press the '3' key. To stop the animation press '4' at any time. If you press the '3' key again, you will notice that the show continues in the state in which they were deactivated..

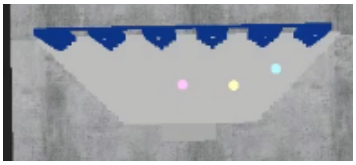

Figura 11: Spothlight show

5.6. Gotham City Police Department (GCPD) Helicopter

The keys to reproduce the movements of this object are the following:

- SPACE: starts the animation
- ENTER: Allows to start the animation again, it must be pressed after each 'SPACE'.

To see a longer animation, you can import the information from the text files, but the 'Frames_Helicoptero.txt' file needs to be in the same folder as the executable and source files.

- F6: Read from the file
- F7: Re-enables reading the file.

NOTE : It is not recommended to read the text file more than once during the same program execution, because unexpected results may be obtained.

For a better experience, you can activate the light linked to the helicopter with the '9' key and deactivate it at any time with the '0' key.

RECOMENDATION : Press the '9' > SPACE > ENTER > F6 > SPACE > ENTER keys in that order to see the long animation.

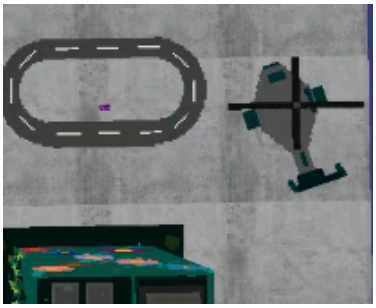

Figura 12: Helicopter

5.7. Gotham City Police Department (GCPD) Airship

The keys to reproduce the movements of this object are the following:

- TAB: starts the animation
- BACKSPACE: Allows to start the animation again, it must be pressed after each 'SPACE'.

To see a longer animation, you can import the information from the text files, but the 'Frames_Dirigible.txt' file needs to be in the same folder as the executable and source files.

- INSERT: Read from the file
- DELETE: Re-enables reading the file.

NOTE : It is not recommended to read the text file more than once during the same program execution, because unexpected results may be obtained.

RECOMENDATION : Press the TAB > BACKSPACE > INSERT > TAB > BACKSPACE keys in that order to see the long animation.

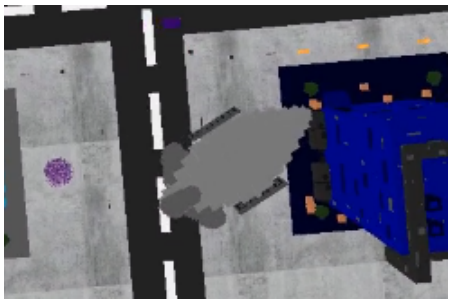

Figura 13: Airship

6. Custom keyboard controlled movement

6.1. Gotham City Police Department (GCPD) Helicopter

You can perform the movement of the helicopter in a personalized way from the keyboard at any time, for this, use the following keys:

- L: forward movement.
- J: backward movement.
- I: Upward movement.
- K: Downward movement.
- M: movement to the right.
- N: movement to the left.
- O: turn to the right.
- P: turn to the left.
- U: Propeller rotation clockwise.
- Y: Counterclockwise propeller rotation.

NOTE : It is important that after each movement with any of the previous keys, you press the 'F5' key so that you can make another movement, otherwise you will not be able to continue moving the object. You can review the instructions on the console if you have any questions.

It is also possible to save your own animations for this object, so you can see it the next time you start the program and read the information from the 'Frames_Helicopter.txt' file, for this you need to delete the 'Frames_Helicopter' file first. txt', as it contains coordinates of another animation and conflicts can be generated.

NOTE : If you do not want to delete the file, simply move it to another folder or rename it. A tip is to add the ending '_old' to the file so that its new name is 'Frames_Helicopter_old.txt' and you can use the initial animation later when restoring the name.
To save the positions of your own animation, just press the following keys:

- F2: Stores the current position of the object.
- F3: Enables the action of being able to store another position, it must be pressed after each F2.

To play the entire animation you saved, just press the ENTER and SPACE keys if you didn't close the window after saving the positions. In case you have closed the program after saving your animation, you need to first import the information with the F6 and F7 keys before playing the animation.

In case you want to save another animation, don't forget to delete the previously generated text file.

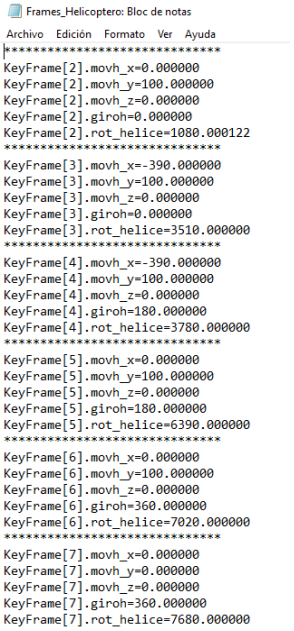

Figura 14: Text file

6.2. Gotham City Police Department (GCPD) Airship

You can perform the movement of the helicopter in a personalized way from the keyboard at any time, for this, use the following keys:

- Arrow up: forward movement.
- Arrow down: backward movement.
- Left arrow: movement to the right.
- Right arrow: movement to the left.
- G: turn to the right.
- F: turn to the left.

NOTE : It is important that after each movement with any of the previous keys, you press the 'F1' key so that you can make another movement, otherwise you will not be able to continue moving the object. You can review the instructions on the console if you have any questions.

It is also possible to save your own animations for this object, so you can see it the next time you start the program and read the information from the 'Frames_Dirigible.txt', file, for this you need to delete the 'Frames_Dirigible' file first. txt', as it contains coordinates of another animation and conflicts can be generated.

NOTE : If you do not want to delete the file, simply move it to another folder or rename it. A tip is to add the ending '_old' to the file so that its new name is 'Frames_Dirigible_old.txt' and you can use the initial animation later when restoring the name.
To save the positions of your own animation, just press the following keys:

- PERIOD: Stores the current position of the object.
- COMMA: Enables the action of being able to store another position, it must be pressed after each PERIOD.

To play the entire animation you saved, just press the BACKSPACE and TAB keys if you didn't close the window after saving the positions. In case you have closed the program after saving your animation, you need to first import the information with the INSERT and DELETE keys before playing the animation.

In case you want to save another animation, don't forget to delete the previously generated text file.

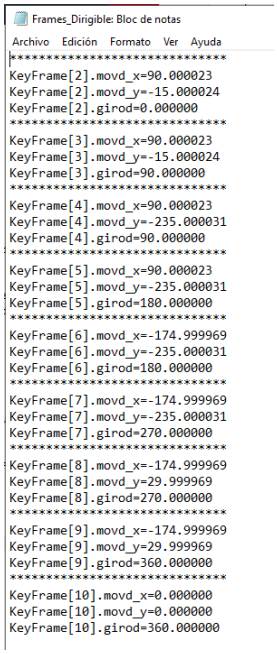

Figura 15: Text file