Computer Graphics (MIEIC)

Practical work 5

Animation

Goals

- Animate objects in a scene
- Using state machines to control the animation scene

Practical work

Over the following points are described various tasks to accomplish. Some of them are noted

with the icon  (Image capture) .Nestes points should, with the program running, capturaruma image execução.Devem nomearas images captured following the format **"CGFImage-TP5-TtGgg-xypng"** , on what**TtGgg** refers to the class and group number and **x** and**y** correspondemao Score and bullet correspondentesà assignment (E.g. **"CGFImage-TP5-T3G10-2.4.png"** , or **"CGFImage-TP5-T2G08-extra.jpg"**).

The tasks marked with the icon  (Code) must create a .zip file of your project, and nomeálo as**"CGFCode-TP5-TtGgg-xyzip"** , (with**TtGgg,x** and**y** identifying the class, group and task as described above).

When the icon  arise, it is expected to execute the program and observe the results. At the end, should submit all files via Moodle through the link provided for this purpose.

They should also include a file***ident.txt***with the list of group members (name and number). Only a member of the group must submit the work.

Preparation Desktop

This work should be based on a copy of the previous work (a classroom with at least two planes, two tables, two walls, the floor and a cylinder) .Must added to files design texture ***clock.png*** provided in Moodle.

1. class watch Animation

This year it is looking to create a clock to the class created in the previous works, that is excited realistically (see Fig. 1).

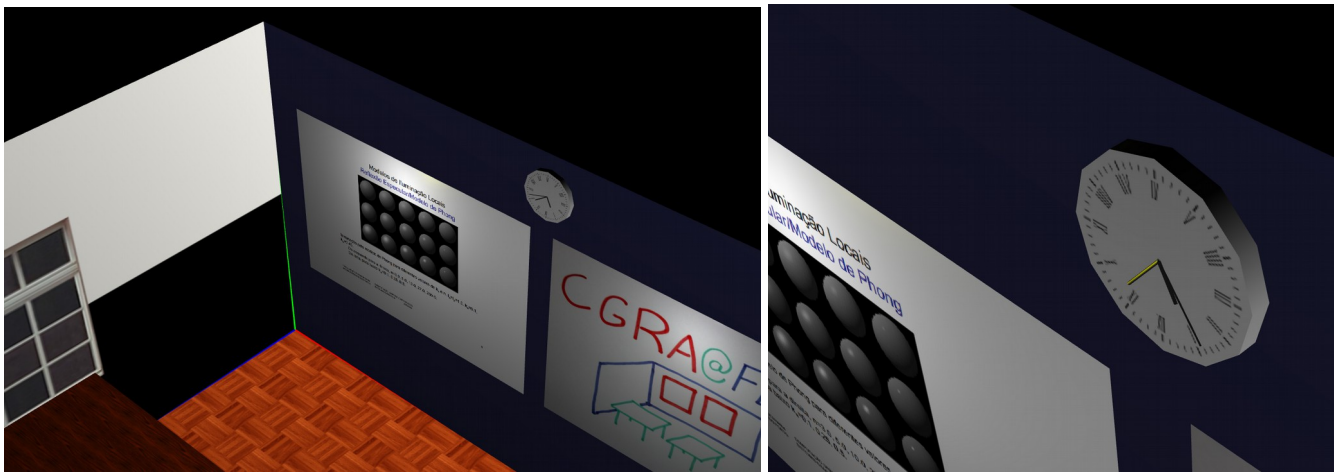

Figure 1: Example of the clock and its placement on the scene

1. Create a class**MyClock** representing a watch, comprising a cylinder (of twelve*slices* is*stack*) Which has at least one of the ends, for the display. Apply the top of the cylinder texture **clock.png**and add an instance of the class to scene. Place the cylinder centered between the two frames, but above them.
2. Crie a class**MyClockHand** Which represents a clock hand "normalized" - based on the source, pointing in the direction YY + and length unit. This class should Terum method**setAngle (angle)** , Which sets the rotation angle (in degrees) of ponteiroàvoltadoeixodosZZ, nosentidodosponteirosdorelógio.Por example,**setAngle (90)** should correspond to the "3 o'clock" - pointer in the direction + XX.
3. Acrescentetrêsobjetosdaclasse**MyClockHand** to**MyClock**, Quedevem be desenhadoscom tamanhosdiferentescorrespondendo aosponteirosdashoras, minutes and seconds.
4. Use the builder**MyClock** the method**setAngle (angle)** each of the pointers to place initially in the position corresponding to 3 hours, 30 minutes and 45 seconds.
5. Acrescente the class**LightingScene**the function**update (currTime)**(Without poragora code), enofinaldométodo**init ()**invoqueométododacena **this.setUpdatePeriod (100)** .Destaforma, Ométodo**update**will be executed regularly, with a fixed cadence**approximate** 100 milliseconds - rate update 1/100 milisegundos.O argument that will be received by the function **update (currTime)** it's the **system time** in milli-seconds.
6. Crie a function**update** in class**MyClock,**and invoke it in function**update (currTime)** gives**LightingScene** , Passing it the valorde time recebido.Preencha function **update (currTime)**from class**MyClock** so had updated rotation dostrês ponteirosem realrecebido.Porexemplo function of time, every second, The second hand is rotated the equivalent of 1/60 of a full rotation, and minutes of 1/60/60.

The calculation should be done on the basis of elapsed time, and regardless of the rate of update-a change the refresh rate should not change the speed
angular average of hands (but may appear more or less fluidity)

(1.6 ) (1.6 ) 

Extra: Paper Airplane

Create a paper airplane (class**MyPaperPlane**) With an appropriate dimension to the scene. This plane should take off one of the tables towards the window wall, an upward trend, and hit the

window, falling face down and stay at rest on the ground. (extra ) (Extra ) 

Check list

By the end of the work shall submit the following images and versions of code via Moodle,

strictly respecting the rule of names, and the ident.txt file with the identification

group members:

-  Pictures (2): 1.6, extra (type names "CGFImage-TP5-TtGgg-xypng")
-  Códigoemarquivozip (2): 1.6, extra (nomesdotipo "CGFCode-TP5-TtGgg-xyzip")