COMP 3490 – Graphics I

Fall 2017 Semester

Assignment 2: The Claw Machine (Deluxe Edition)

DUE: November 27, 2017

In this assignment, you will implement a more advanced version of your claw (crane) machine. Functional requirements related to geometry are now more specific, and there is added complexity in lighting, and texturing the scene. You will also add some basic physics, with more advanced physics providing the possibility of bonus marks. The following details what is required, what to hand in, useful resources, the grading scheme, and other tips.

For definitions of some of the items that appear in the requirements , see Figure 1.

Assignment Requirements

[2 Marks] Spacebar drops claw (in y plane) and the claw moves smoothly to the floor of the box, then returns to its starting position

[2 Marks] Build a fancier claw. The design is up to you, but it should be capable of making a motion that looks like it is able to grasp objects.

[2 Marks] Add at least 2 spotlights inside the claw machine that illuminate objects inside, and fancier lighting to the room

[1 Mark] Add an assortment of objects inside the claw machine. What you choose is up to you.

[2 Marks] Add textures to the outside of your box. This could include a wood grain, or texture of your choice

[1 Mark] Add a sign with the name of your game (a marquee) to the machine. This should be illuminated.

[1 Mark] Give the floor a glossy appearance, such that a slightly blurred image of the machine shows up faintly on the floor

[1 Mark] Give your machine the appearance of having glass windows between the player and the prizes

[1 Mark] Place glowing buttons, and a glowing coin slot on the machine

[2 Marks] The objects in the box should stack on top of one another. That is, there is physical interaction between them. (See e.g. https://threejs.org/examples/#webgl_physics_terrain)

[Bonus: 2 Marks] Your claw can pick up objects, carry them to the prize bin, and drop the prize into the prize bin

Total: Out of 15 Marks (17 is the maximum possible)

You should build on your first assignment in completing assignment 2. **You should submit your code as an archived file**. (e.g. .zip). Your code should work when the .html file is launched in a browser on a Windows 10 machine. **Name the file lastname_firstname.zip and submit to the A2 dropbox on umlearn.**

You should also **complete the information requested in the included "README.txt"**, which also provides an indication of which components you feel you have completed successfully. **Include this with your submission.**

Tips and Resources

There is an associated js directory included with functionality that has been developed by the open source community over time. You should feel free to make use of functionality that appears in this folder. Some of it already is already used in the skeleton.

As with Assignment 1, you will benefit from examining examples on the THREE.js site.

The main page includes complex examples, and demos intended to promote commercial products. However the "examples" link in the left bar provides simpler examples of how to do different things.

This is located at: https://threejs.org/examples/

Given that you are dealing mostly with simple elements, you might actually find the docs more useful.

This is located at: https://threejs.org/docs/

For anything physics related, you might consider: physijs (http://chandlerprall.github.io/Physijs/) or other similar toolsets.

There are many DIY projects mentioned in the assignment 1 information sheet. You might look these over again in places where you have room to exercise creativity.

For fancy claw inspiration, you might look here:

https://www.youtube.com/watch?v=Um3-F58XmAs

https://static.vecteezy.com/system/resources/previews/000/088/145/non_2x/stylized-claw-machine-claw-set-vector.jpg