Edinburgh Napier UNIVERSITY

Coursework Report

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Abstract

The aim of this project was to complete the coursework given for the graphics module of year two of Edinburgh Napier University. The scene shown has taken visual inspiration from the game Antichamber, using a simplistic black and white style, with minimal colour. As well as this, inspiration was taken from the idea of a lava lamp, which would cast coloured light across the room, allowing for each of the different primary colours to be mixed on the black and white furniture.

Keywords – napier, 40206862, course work

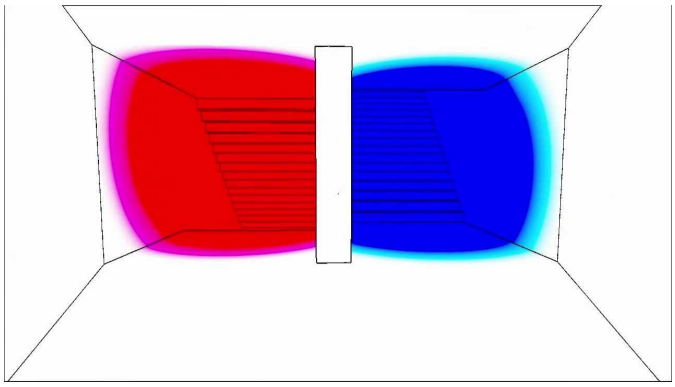

Figure 1: **Antichamber** -example of the game Antichamber(2013)

1 Introduction

Figure 2: **Example 1** - basic image of scene

Figure 2 shown displays the primary effects used within the project; multiple lights, texturing, and normal texturing. Not shown is the transforms being used to move the balls in the centre of the lamp.
The lighting being used is: multiple point lights based within the balls, a spotlight used to emphasise the centred lamp, and a directional light used solely for the normal mapping, in order to demonstrate it. All geometry within the proram is textured, however the table found in the corner of the room is textured using a normal texture, giving a better depth to the wooden grain.
The shaders within the project are used to replicate how the light reacts to the objects, with the need to react to the three different colours coming from the centred point lights. The shading method used is phong shading, which gives a much more realistic look to it compared to gouraud shading.
The tranforms used use delta time and sine and cosine waves in order to create rotations around the centre of the scene, as well as moving up and down on the y axis to add a further comparison to a lava lamp.

2 Implementation

The implementation process for the scene was relatively simple for the most part, however the complications came when the decision was made to use multiple light sources as well as having the three point lights being based within the balls that rotate around the centre. By inverting the normals of the balls it would allow the light to travel a lot farther from the balls, however it would mean the balls themselves could not receive light. Instead, the material of the balls were adjusted to allow for their colours to come through more vividly without taking away from the lighting being cast on them.

3 Future Work

The balls being the main focus of the project could mean that there are other areas that could be further improved upon, such as bringing normal texturing to the rest of the geometry, though there could be multiple ways in which the balls could be improved as well. Such as making these balls metaballs, giving them a more gel-like look and feel to them, as well as generating the sizes, colours, paths and number of balls randomly.

4 Conclusion

To conclude, the focus of the scene would be the balls in the centre, and the realistic style of lighting used in order to portray a lava lamp-esque feeling to the scenario. With more time and work put into the project, the lamp itself could be made to look more lifelike in terms of having a more realistic lava gel without losing any of the realistic lighting and shading effects.