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CA workbook

This project combines techniques taught in labs as well as techniques learned through online resources. The aim of this project was to model and animate an object that may exists in 2050. The scene/ animation I developed is the discovery of a new planet not yet known to humans today. It includes a rocket flying past, and a spaceship which can transform into a beaming moon. In the scene there are several ufo's scattered around, these represent unknown robotic systems that are discovered on this planet. Thunder effects are added to illustrate the power that the metallic/ robot dragon possesses. Spaceships can mould and transform into other objects. On this scene the moon is purple. This scene is planet x 2050.

The Scene

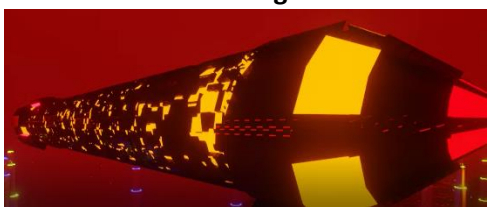
fig1

The scene here was planned and made from scratch. In this scene there are two layers, one for the hills and one for the buildings. The buildings were built using similar techniques as taught in labs. They were simple shapes that were extruded and resized and simply coloured using different colours (using emission to create bright/shining colours). Only three variations of these buildings were developed. However, to disperse the building I rendered them as particles. This means they are not produced as high quality; however, they are easy to recreate and disperse. I could also easily change positions of these buildings and the number of buildings that were rendered rather than positioning around the scene manually. Different styles of buildings could have been created and added to the building collection, anything added to this collection would be rendered as part of the particle. However, due to time limitation only three were created. A building emitter as used to inherit the building collection and display and scatter them around the scene as particles. Overall, this was quite challenging as I was unfamiliar with this technique.

The second layer containing the hills was created by simply going into edit mode and splitting the layer into many portions and selecting vertices. These vertical were the extruded using the E key and smoothed using the mouse scroll. Moreover, I utilised diffrent shading techniques to make it more reflective and realistic. A vector bump was used to generate a perturbed normal from a height texture, for bump mapping. The height value will then be sampled at the shading point and two nearby points on the surface to determine the local direction of the normal. A wave texture was also used to add texture to the scene. To make the overall scene red, the world scene option on the properties panel enabled me to modify the scene colour. Fig 1 illustrates the overall scene of this project.

The Nuke/Rocket object

fig2



This object (fig2) was modelled using numerous cylinders on top of a base larger cylinder. The cylinders on top used the displaced modifier and then texture used to add cell noise, this enabled the gaps within the cylinders, the base cylinder used orange emission material and showed within these gaps. The cylinders on top used black metallic property to make it look realistic. The boost section and the front sections were created simply by selecting portions of the object- extruding them, resizing them and then colouring them. I utilised an empty to control the overall object. The empty was essentially the parent of this object. To twist the rocket, I simply rotated the object in the y direction, whilst setting a higher value back portion of the rocket to enable faster rotation. The object was simply moved using G button and setting a location value for the rocket in the timeline set. This object has an aspect of originality. Modelling and developing this object included techniques learned from outside the lab, I created the rocket in this way as it was the most efficient as well as aesthetically pleasing. As developing this object involved using new

techniques that I was unfamiliar with (adding texture/shading) so it involved quite a bit of studying and experimenting.

The Camera

I animated the camera to move throughout the scene and to follow the various objects that are in focus at that times. This was not particularly easy, and I did find it quite challenging to begin with. However, through research the most efficient way was to create a Bezier path for the camera to follow or creating multiple cameras around the scene. Nevertheless, there were issues out of my control when attempting to implement this, hence I had to manually create separate location/rotation timeframes for each time I moved the camera. To enhance the animation, I added a blur effect at the start of the scene, this was learned outside of the labs.

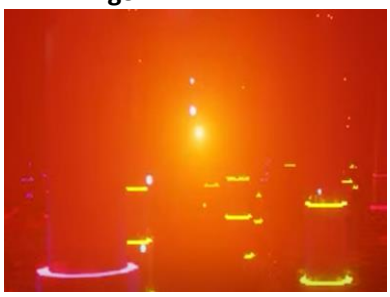
The spaceship/ Tunnel

The spaceship was downloaded and imported from an online resource; however, I animated this object myself. To make the object appear, at certain time a resized it from 0, to its original size, this is to add the effect that the object is travelling from a distance.

Different location, sizing and rotation techniques were utilised to animate object to put into along a path. Animating this object was quite challenging as it required using new techniques not that in labs. This object was animated to follow a along its path into the tunnel. At the end of the tunnel, the object should transform into a moon and shine bright. I utilised the subsurface modifier as well as the shrink wrap modifier. The shrink wrap modifier enabled me to resize the spaceship into a uv Sphere which could turn into a moon. Techniques used to animate this object was quite challenging and were not covered in the lab. However, this using this technique was the most efficient way to animate this object. The Tunnel was imported from online resources to enhance the way the scene looks.

Sun/Spot particle emitter

fig3



The sun is implemented using blender techniques, I had to research how I would brighten up my scene. Through research, I found out that using sun lighting was the best way to achieve this, this enabled me to improve my scene. The particle emitter was developed using techniques learned from light candle lab. However, this version was more advanced and creating this animation required research outside of what has been taught in the labs. Firstly, I utilised a spotlight to create a bright orange light, then a sphere particle was placed directly behind spotlight. Moreover, I also placed a force field wind, to give constant force in the direction towards the camera. This was a technique developed from outside labs. I found it challenging first as the wind force moved all the building when I played the animation. However, to solve this I needed to isolate the wind force field, I created separate collection and used assigned the wind to the sphere using the effector collection. The image on the right illustrates the sphere emitter, releasing light blue spheres.

The dragon

The dragon was downloaded from imported using online resources. This object came with an armature and was already animated. I modified the dragon to give it a metallic look. Nevertheless, I used a new technique whereby I make the object disappear at a certain time in the time frame, this was done by clicking I on the view and render options to make sure they appear and untick them at the time I want them to disappear. Discovering this took quite some time for me, and I found it challenging as the dragon did not disappear when I rendered my animation. This was eventually solved by also time framing the render option in the visibility panel.

Audio

Adding sound effects to this project was something new to me. This was not taught in the labs. I used blender's video editor to add sounds to different time frames when they were required. "Sound effects in this project were obtained from https://www.zapsplat.com".

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Ufo's

The ufo are modelled and created from scratch using blender techniques and objects. I utilised 2 cylinders to create the base ufo. I used smaller and brighter cylinders to surround the base ufo. This object was created using techniques I learned from previous labs. Animating the object was quite simple, for the duration of this whole project/ video I set the ufo on rotation, this was done by creating time frames on the timeline. Techniques used to create these objects were not challenging. This object could have been more detailed however, due to the timing contains I used these simple techniques. The object material was emission, to make some parts of the ufo brighter in some segments.

Thunder

The Thunder was modelled by me using blender. I utilised two cylinders. I simply extruded and changed directions to make them look as random as possible. I combined the two cylinders using the Boolean modifier. Additionally, a displacement modifier was used to make the thunders pattern look more random. I utilised the graph editor to add another modifier of noise, this would add the flickering effect to the thunder. I experimented with timeline to animate the thunder, I resized it from 0 to make the thunder appear and resized it back to zero to make it disappear, to make it gradually appear the timing must be right. I also modified the colour so that it was brighter when the full thunder appeared. Modelling the thunder was quite challenging as it was a new technique I have not learned in the labs. However, I utilised this method as it was quick to learn and easy to recreate multiple thunders once I created one. The thunder effects can be seen in fig1.

Note- The video submitted is not the final version- the spaceship is meant to remain a shinning white colour. The animation took very long hours to render.