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A Walkthrough

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Abstract

This report has been made to help the readers understand the process within 3d projects. The process includes sections about researching about all the elements involved. The production phase where it will explain to you what all the phases are all about. The modelling, texturing, animation, lighting, rendering and post-production.

This report also includes the project specification which are made by the students themselves. There is also a section about review. That section includes limitations about the project overall. Also strengths for oneself working with the project. And finally we have the conclusion.

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1. Introduction

The purpose for this report is for you to have a better understanding for what work needs to be done in both planning and working in 3d. This report contains information that explains the basics of 3d terms like "ambient occlusion" and "chamfer". It also includes detailed descriptions on how the process in making this project went by. There are various contents in this report. There is a research chapter where it will be explained for what kind of environment the project is going for. A chapter about production phases. The first section is about modelling where you will read and learn some of the terms used within modelling. You will also read about the process. The second section is about texturing. It gives you some insight to what is needed for an object to be realistic. The third section is about animation. It tells you about how to animate things through a curve editor. It also tell you what was removed from the initial plan. The fourth section is about lighting. It is about the light settings and about shadow sampling. The fifth section is about rendering. Here you will read about the difficulties encountered among other things like z-depth pass. The sixth section is about post-production. It tells about what decisions and corrections were made with the program after effects.

In the end of this report you will come find the conclusions of what was discovered and learned. You will also read about the limitations of what this project had and what effects it had for the finished film. You will also read about the decisions made within all the contents of this report. What was needed to be done for this project to be completed.

The aim for this project was to make a high quality short "ride film" through the environment for about 30 seconds. This was inspired by a video about gameplay of a game called Bioshock Infinite. So the challenge was to make a similar environment all alone.



Fig 1. The look and feel I am after.

2. Research

The setting for this project is set around the early 1900 and it is set in the United Kingdom. You can clearly see that by the look of the houses and objects in the environment. The houses have that Victorian look. Now through the research that was conducted online it showed that the houses built during Queen Victoria (1837-1901) are called Victorian houses. They have this classic architectural style that can be seen all around United Kingdom and outside of the country. Countries like Australia, North America are such countries that have adapted that Victorian look. So as for that all the houses in this project will be of that style consisting of bricks and stone details and modest details.



Fig 2. and 3. Examples of simple Victorian houses.

Observation around Middlesbrough was also conducted just for the sake of having it in real scale and for references. For references meaning for textures, bumps, speculars, reflections, shadows and scale. Which is quite clever as it would have been a much harder time finding it out otherwise.

On to the objects for the time and scene. Doing research for what existed in that period of time. What kind of street lights did they have during that time period? Now from the research gathered online shows that there are three main types for that period and for which continues on as of today. We have the oil type which has existed for quite some time. And then we have the gas type which replaced the oil type, but the oil type was still common to use as far as late 1940's. The last one close to that period is the electric type.

Now the first electric street light in the United Kingdom was lit as early as 1879. Quite close to the period set for this project, but the one chosen for this project is the gas type. Just by the look of the light it emits. Just the right amount of light.



Fig.4. and 5. The elegant style of the pole and the glow from the oil light source.

Choosing the right design for the carriage was harder than expected. It had to be the right kind of transportation for the street. A design that would blend into the environment and give the viewers a sense of where and what they are looking at.



Fig. 6. and 7. The first considered carriage and the one chosen based of the simpler design.



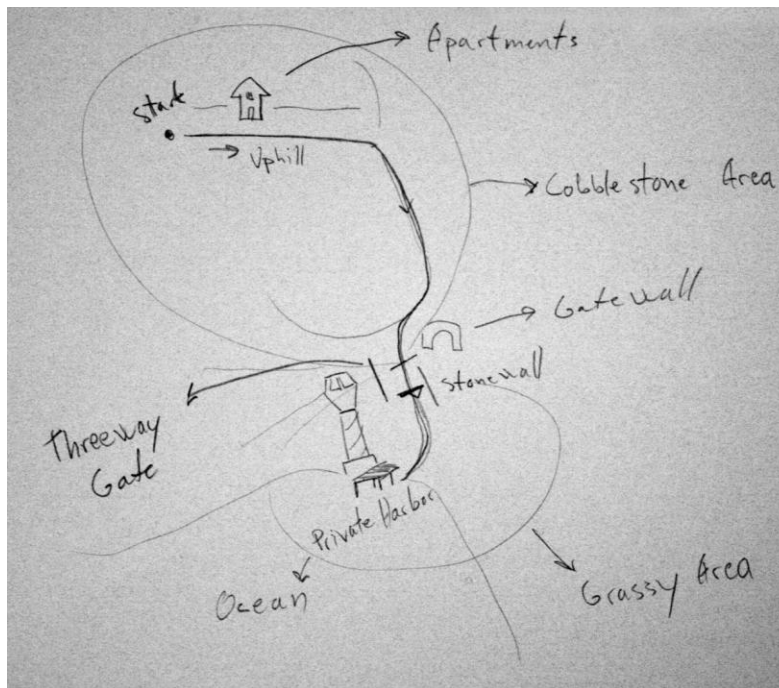
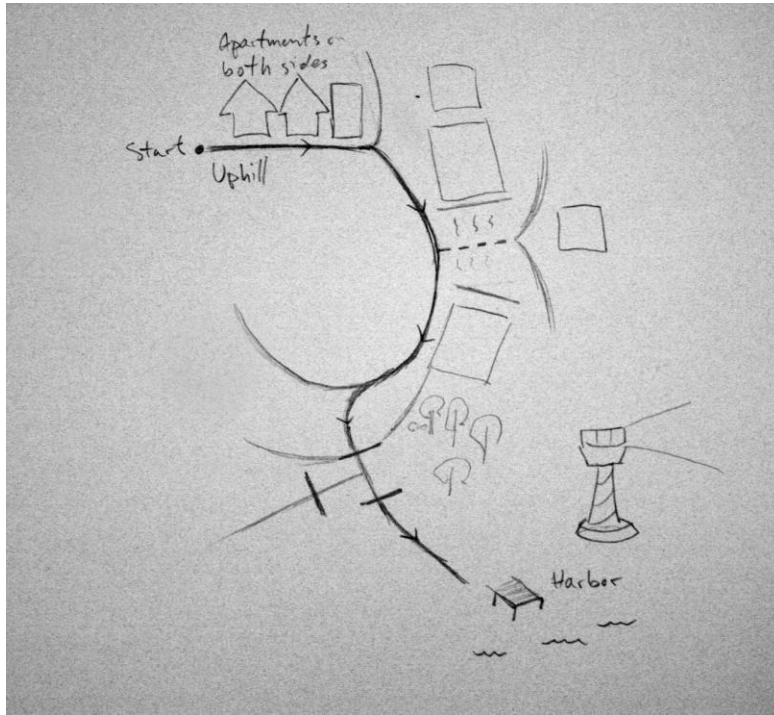
Fig. 8. The wagon reference.

The wagon did not end up like the one in the image above. Instead it became somewhat new. Not like this beaten down old wagon. Now for this wagon to have a purpose in the environment there will have to be objects to transport. Wooden boxes, barrels, fire wood are just some examples that could give this meaning.



Fig. 9-11. The wooden boxes, the barrels and the fire wood.

Reference images on how these crucial objects are. They are crucial on the terms that without them the environment would be empty. The environment would look too dull otherwise. The same goes with the trees and the street light. They are essential for this project.



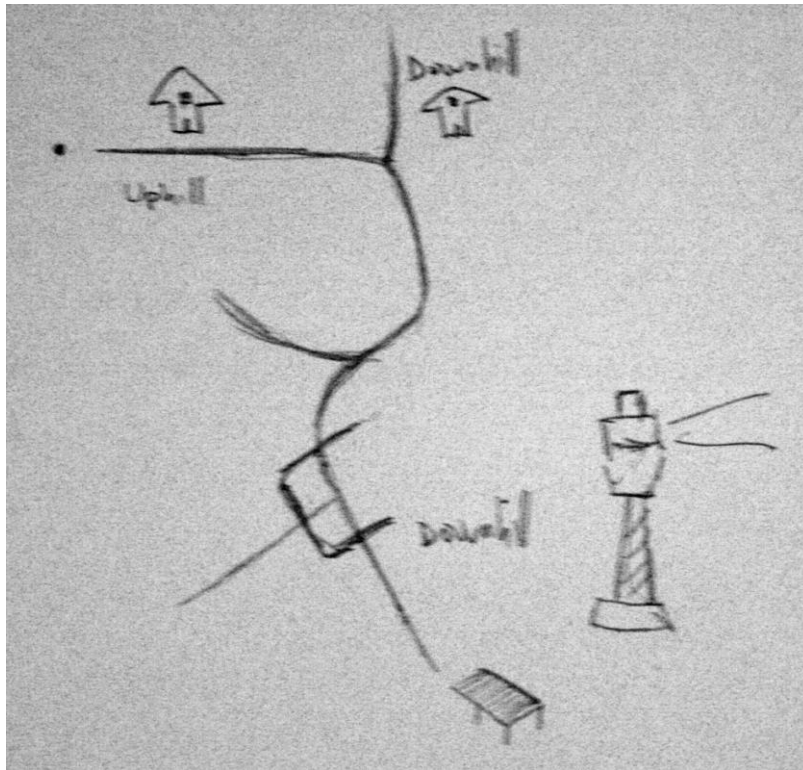


Fig. 12-14. Layout designs.

A couple of sketches were made early on to figure out what was needed to be made and figuring out where the objects would be placed in. It started out by going up a small hill where you would see houses on both sides. Continuing on seeing more houses until you reach the gate. Now inside that gate would be three exits. One leading to the harbour going downhill. Beyond that gate is a grassy plain area. With bushes and all kinds of trees and flowers. At the harbour you would see a lighthouse signalling ships out in the open ocean where you would end your sights. Now that was the initial idea for the project. As time showed this project would be too time consuming and not realistic for the time schedule set up for one student alone. It was then minimized to only going uphill where a wall and a gate would be placed at the end instead of buildings of a church, town hall, market and all that. Making it more realistic achieving the goal for this project.

3. Production

3.1. Modelling

Now what is 3d modelling? It is a process of forming the shape of an object. How do you shape an object? For starters analyze the shape of the final form of the object. Find out approximately how many vertexes, edges, faces it has. It is a lot like tracing in 2d. The only difference is that it is in a 3d space.

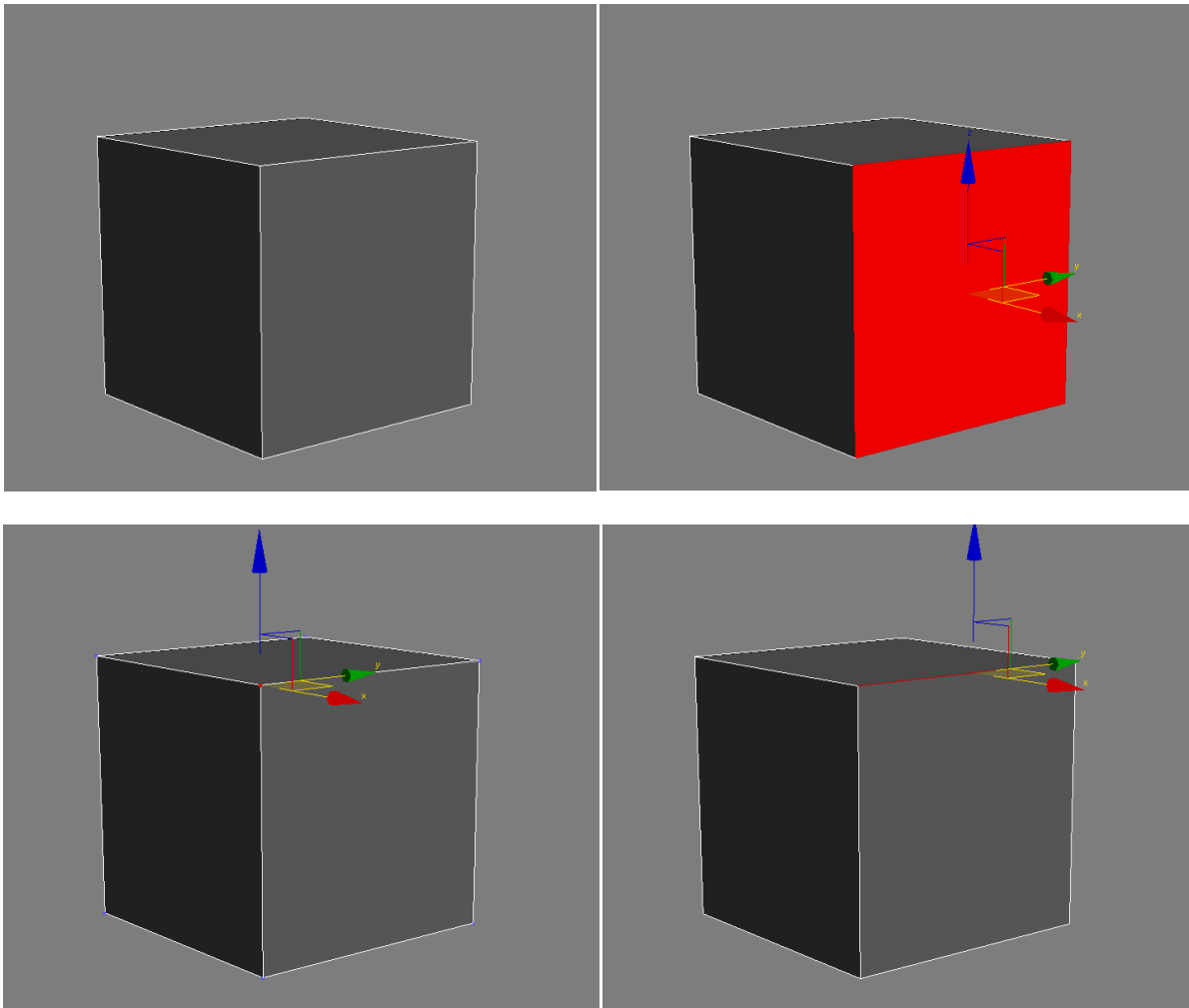


Fig. 15-18. A box, a polygon, a vertex and an edge.

A box has a total of six polygons, eight vertices, and twelve edges. Now with these you can control and form the shape of the box by moving them around by your desire. You are only restricted by the amount of control points. It goes without saying that you will then have to add up more vertices, edges and polygons. What you can do is you can make a loop cut or just make an edge wherever you may please. Although you would have a

better time looping the whole object and clean the object later on. This is known as box modelling which is quite simple and effective and is the method used in this project.

What control do you have in 3d? First of you have a coordination system when working in 3d. Within this system you can transform your object with three controls which are move, rotate and scale.

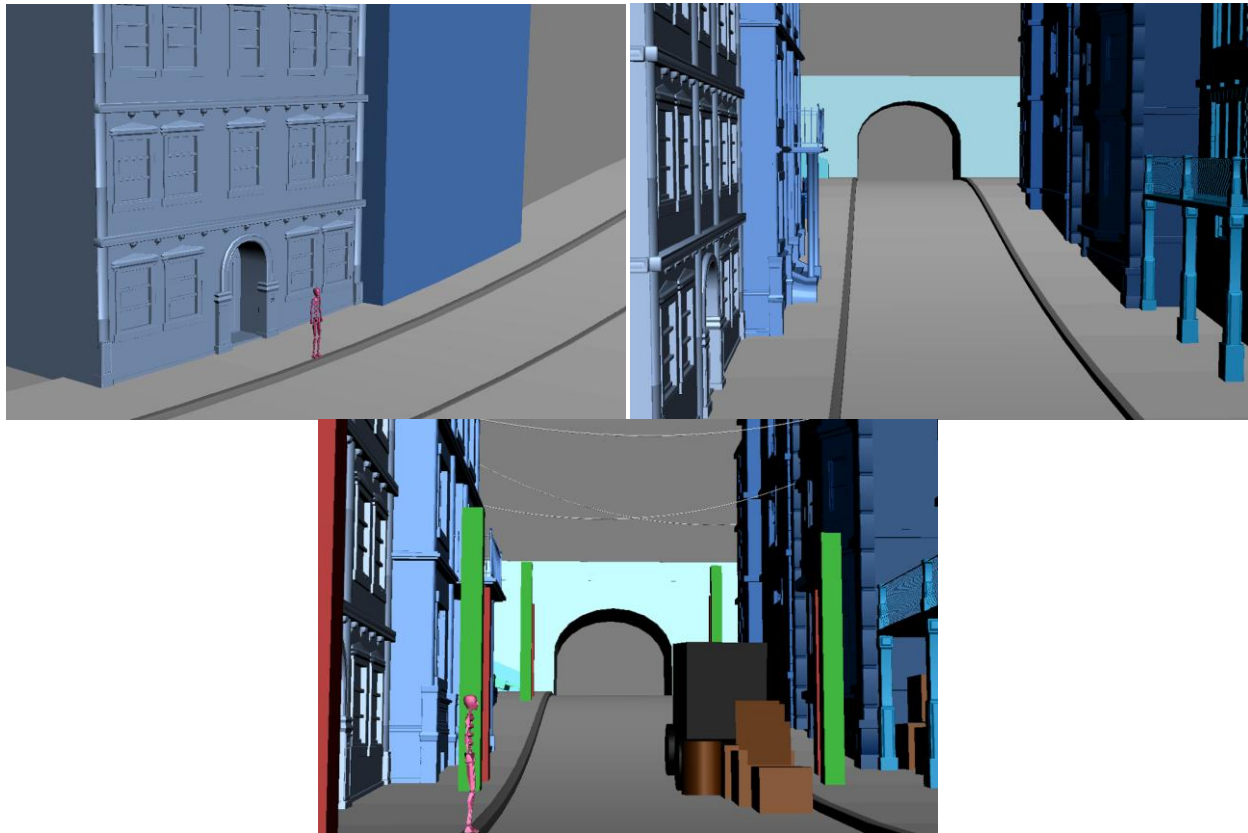


Fig. 19-21. Modelling progression from several boxes as a starter.

It is quite fascinating how much you can make out of a box and a cylinder. It is crucial that you take your time analyzing your object. Knowing where you need to make another edge. Like what is said earlier you just need to trace the object in 3d. Do so by following the edge flow of the object. Another fact to add is that no object is as edgy as one might think. Even a sharp knife has small smoothed out edge. So the think you would end up doing to that object is to chamfer it. Now by chamfer you add more edges to the designated area.

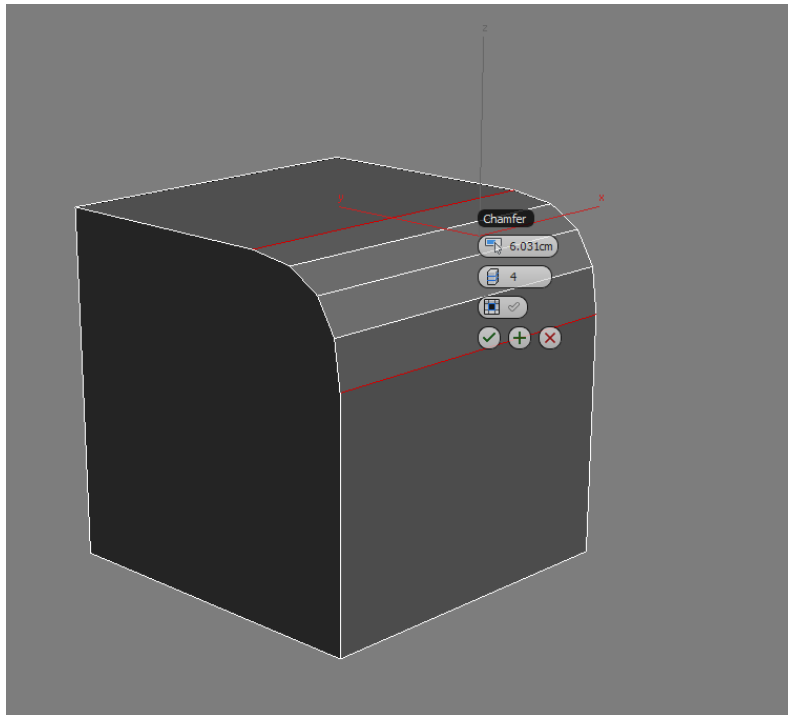


Fig. 22. A box with a chamfered edge with four segments.

This is applied to absolutely every visible edge in the environment. It will help the light catch the edge properly. Giving it a more realistic feeling with the specular shine, a more glossy look if you wish.

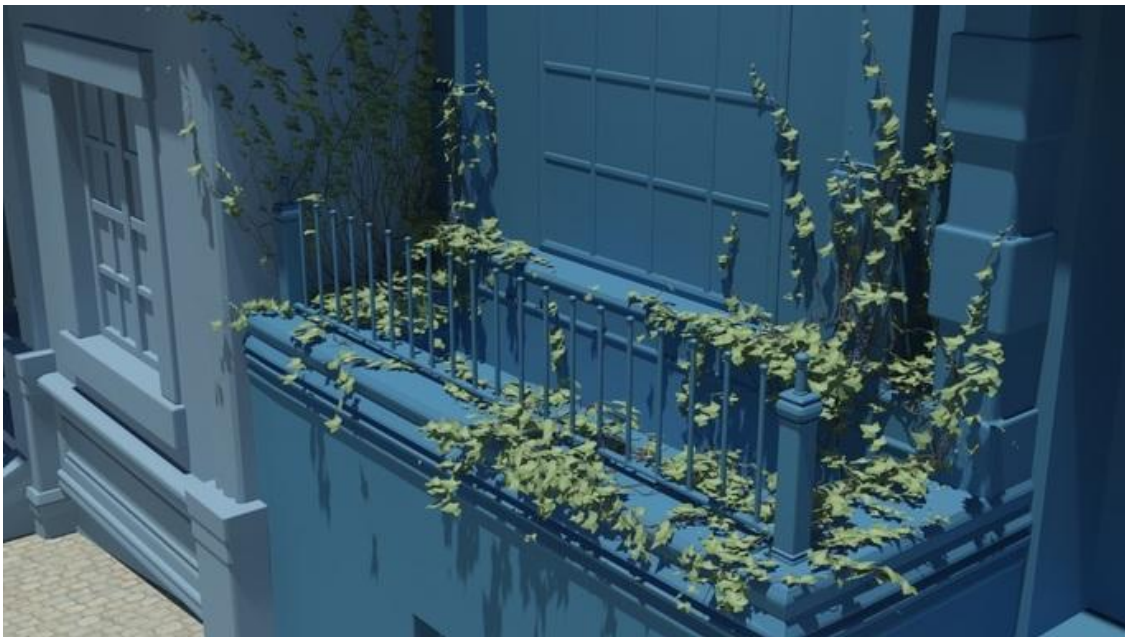


Fig. 23. Testing the Ivy plug-in for 3ds max. Made by Guruware.

There was a need to find a plug-in that made ivy grow naturally with the surroundings. At first there was a test using a third party program called Ivy generator made by Thomas Luft. This one worked quite fine, but it was troublesome too export from 3ds max and Import it to the Ivy generator and make it there. Later on there was a discovery of another program used within 3ds max. It showed that it was continued developed by another group called Guruware. It is faster to work with within 3ds max with that plug-in. All you have to do is to place a vertex to where it should start growing from. As simple as that. Saving time from modelling it by hand. Still there are some issues with this plug-in. It gives you a whole lot of unnecessary polygons. An easy solution to this is to "weld" together vertices that are close to each other. You will be able to cut it down to about a tenth of the original polygon count. Still having the ivy in the final scene before rendering was a pain. 3ds max would start to lag all because of the ivy. You will then have to import the ivy just before you are about to render.

Modelling the houses went on by just adding modest details on every house. At first there was a plan to copy a house and paste it too add a few more houses, but in the end the decision was made not to. So the plan was then to make every house unique. The decorations would be of somewhat same consistent style, but not the same. It helped to walk around Middlesbrough looking at houses. Looking at other peoples door entrance. Getting ideas on how those subtle decorations would look like.

Giving depth to these houses were done by extruding inwards through the windows. To minimize the view there had to be something blocking the view in. This was done by adding curtains on all the windows and by giving the windows a certain value of reflection. Making it harder to have a clear view inside the houses since they are empty. The curtains would normally be made with a cloth simulation, but instead in this project it was simpler to just make a plane with a couple of vertical edges and just pull them apart and chamfer the edges. Since there was no need for the curtain to be interacted with why would you make it more complex then it is?

The road and pavement were made out of a regular plane with enough edges for it to be bent the way it should. To make it bend you use a modifier called bend. With that modifier you can control which area of that object you want to bend by your choice of value. Once that was done you would need to make it uneven. To do this you need to add more edges on both vertical and horizontal. Then use the soft selection tool which enables you to interact with vertices or edges of a certain value of your brush size. You can then move up or down or even sideways with a the chosen strength of the brush.

Leaves on the ground was make with a simple plane mesh with a texture of a leaf. You then make a particle array and add that leaf to it. Later on you add the target of the shape you want to have your leaf be aligned to. And so now you control how many leaves you want to add to that target. All you have to do is adjust the size and rotation.

A way of keeping your objects in a scene up to the right scale is to add something called a "biped". Now this one is used for rigging a character mesh and animation, but it also function as a measurement. Sure you could create something simpler like a box with the height of an average human being. It is your choice. Keeping objects in the right scale will help when it comes to lighting your objects with realistic lighting.

3.2. Texturing

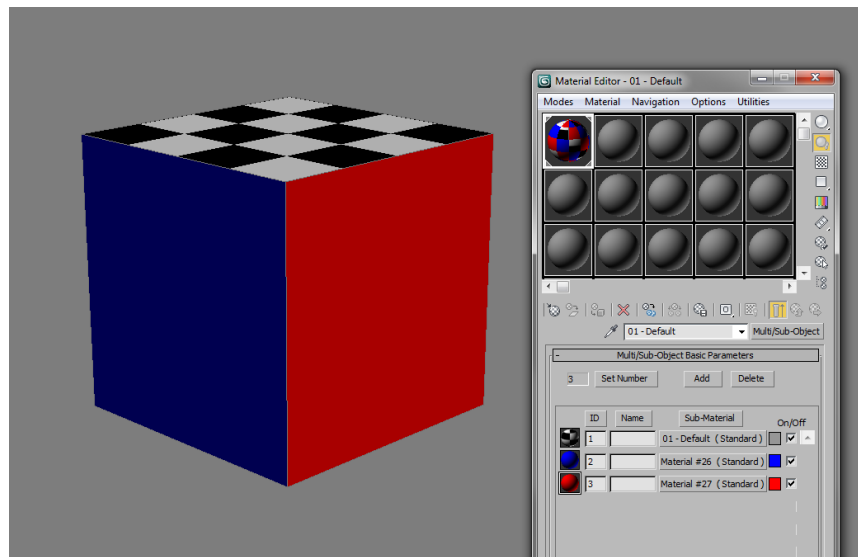


Fig. 23. A box textured with multi-sub material.

By texturing you can control whether an object has a high value of specular, glossiness, ambience. You can decide what material that object should have. Here is where your analyzing skills come into play. Really knowing the object helps making it realistic in 3d. Just by looking at how the light are being absorbed by the object.

There are several things you can by modelling an object. Say you want to model a whole wall of bricks. You can do that, but it would be too time consuming for a small student project. So instead you would be resolved to texturing that brick wall. Are you worried it would be too flat? Don't worry there is something called a bump map. As it implies it gives you "bumps" by your choice too your flat surface. This was used on all the objects in the environment. It would look kind of wrong if the objects would not have that "bumpy" surface. There are of course exceptions. There are those who have that polished look. A perfect new mirror for example.

What makes a good texture? Well the ones you can find on websites like <http://www.cgtextures.com/> are pretty good. Usually go for the one with a decent

resolution. If you are making a full scale brick wall and you find something with a resolution of 240x240, you better hope it is tiled. Naturally you would not want something of that resolution for something large scale. Meaning you would still have to resize it in 3ds max making the texture stretched. Losing its quality. Pixels would be more visible. Go for something with a resolution of at least 1024x1024 or higher.



Fig. 24. and 25. Both tiled textures of a brick wall and a stone wall.

A tiled texture means that you can multiply it over your surface without having a problem with the texture being interrupted in each tile. So for this project there are a couple of good tiled textures. Unfortunately none of them had a bump map. So that had to be made in Photoshop. All it takes to make a great bump map is to desaturate the image of your choice and maybe tweak the levels of the white and black balance. You might want add a little blur so the transition would be a little better from black to white.

3.3. Animation

For this project there were a larger plan to involve animation more then it ended up with. Like a wagon full of fruits or vegetable breaking down while the content rolls down the hill. Flames, smoke, birds were also intended to be animated just too mention a few planned events of this short ride film. There were just too many factors to be aware of. Like having to learn how to use the reactor plug-in for 3ds max. Only two types of animation were included in the end which is the most essential animation for this project. The camera animation and the animation of a weak wind in the trees and flags.

The point in this short film is for the viewers to go from A to B while viewing the environment left to right in a first person perspective. The method for timing the movements was to act it out using the imagination of being in the environment. While animating it helped to time it with a stopwatch. This was done in linear mode at first and later on switched it to a auto tangent too make the movements smooth. With the auto

tangent you can control the ease in and out within something called the curve editor.

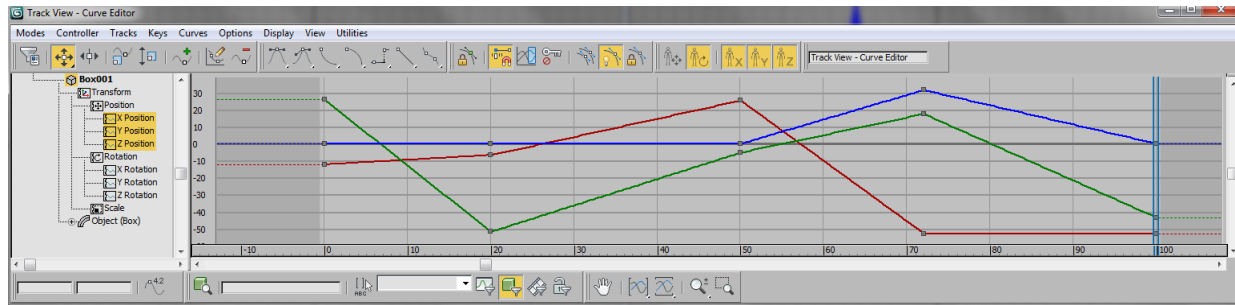


Fig. 26. The curve editor. An object in linear mode.

The image shows an object in linear mode. The timeline is at the bottom starting from 0 to 100. In curve editor you can adjust the values of move, rotate and scale by the X,Y,Z-axis. Remember about the coordination system? If you want to move the object higher up then you have to move the Z-axis up. In case the blue line. You can see that the object goes up somewhere around 70 and back down again. These are only the move lines.

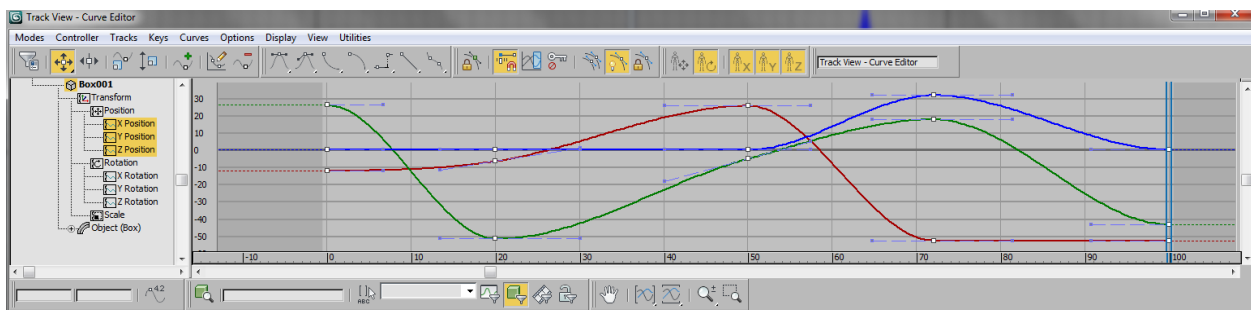


Fig. 27. The object in auto tangent.

The movement of the object is now changed, for the better. It is now a smoother transition between keys. You can also see that the keys has now received a Bezier controller. With this you can extend the duration or decrease it. Say you want to have the object hanging in the air for a little longer. You then have to drag the controller of the desired key further out.

Is there a reason for why the camera is looking at certain areas in the film? There is. A look-at map was made within 3ds max for area of interests. It is solely for showing of the details in all the different areas. All of it was timed by doing the action.

The flags and the trees were animated. The trees were animated using a couple of noise modifiers on the leaves. They are animated separated so they have their own unique way of moving in the "wind" too bad the movements are not that visible. The camera does not stand still enough for it to be seen. The same for the flags. They are animated by hand and not by using any modifiers. It would be more accurate using a modifier that could react to a force in the scene like gravity and wind, but the result is it does not matter since

the movements are not as visible as wished. It is a weak wind so it does not really matter. The flags were instanced to each other. Meaning if one were animated they all became animated. The flags ended up having a unison way of waving in the wind. This was then offset a bit for each group of flags to create a delay of being touched by the wind.

3.4. Lighting

Working with lights is always a pain. There is just so much that can go wrong. Which of course happened this time as well. This will be explained in the rendering section.

The initial plan was to lit the street lights, but as time went by there was not enough time to work with the lights. So it was settled that there would only be one light source in the environment. Which is the light from the sun. A daylight system found in 3ds max were you can tweak the settings to your liking. For this to work properly you need to activate the mental ray render. Switch on mental ray sky and mental ray sun. All left is to find the most suitable location, date and time. For as in this project the time would be about 5-6pm to get that subtle sunset feeling. That is depending on the date this is happening. Now you need to rotate the "compass" so that the sun is placed in the right position hitting the right areas.

Early on in this process the shadow sample is turned down pretty low. Making the computer faster to render. Now a shadow sample is all about the quality of the shadow. As a standard it is on 8 softness sample which will make the shadows pretty edgy. You definitely want to turn this up to check out how it turns out with high settings. 64 or 32 samples is fairly high. You can go even higher, but 64 is quite high. Going over 100 is slowing the render time drastically. Increasing the render time per frame by an incredible amount.

Don't forget to turn on the mental ray photographic exposure control and gamma. These will help giving you a more realistic environment. Now with the gamma you could put it on 2.2 which is the normal value for a realistic light setup, but it depends on the area you are lighting up.



Fig. 28. and 29. Testing out lights. 12am versus 6pm.

The atmosphere was essential to test out early on. Even before all the objects were done. Also before texturing. Clearly the image with the sunset is a better choice between these two. It is more beautiful than seeing the other one. It gives the environment a bit more charm.

One thing that could be a good habit is to have the light setup done before even starting to texture. This will help you since adding the lights after texturing. The lights tend to make your texture a bit dull. Since your eyes will adapt to a setting without a light setup. Adjusting your texture until you think it looks good. If you had the light setup done you would not have a problem to go back to. This was not even thought of until at the end of texturing.



Fig. 30. and 31. Gamma turned off and gamma turned on with 2.2 value.

Here you see the difference between one with gamma turned off and another one with gamma turned on with a value of 2.2. The one without the gamma is too bright. And you can see with the gamma turned on that the texture on the barrels and ladder is a bit strong. So a little trip back to texturing. Another thing to remember is to turn up the bounce light when you turn on the final gather. Light bounces around in reality. It hits a surface and bounces off it and so on. So about 2-3 bounces would be enough.

3.5. Rendering

Rendering this movie has been a pain, but this is a good thing. This way you find out if you need to fix something before continuing on working with your renders. Working with render settings with high quality samples, Lanzcos filter, final gather on high, bounce on two and shadow samples on 64 from different points on the timeline to see if there are any need for tweaking. If there are not anything troubling the scene you should go right ahead to see if you can sacrifice a bit of the quality losing a few minutes of render time. At this point it took about 8-9 minutes to finish a frame. Now that's with the highest quality render setting. After fooling around with all the settings lowering the quality to a certain degree. It almost looks identical to the high render setting when rendering out frame. To check this out you can use a function within 3ds max called RAM player. Now this enables you to view two render images at the same time and even slide over to see the changes. Now with the lower render setting each frame would now render at about two minutes. This was just great. Meaning the render time would "only" be about 27 hours for 800 frames. At that point where you have spent over 20 hours waiting for the renders to be done you might want to stop the rendering to check out the images in real-time. So you open after effects, load all the rendered images in and watch the frames in motion. What was then uncovered at the very beginning there was a light flickering. That was odd since there were not suppose to be any lights other than the sun. There was something lighting up one of the areas at the very beginning. Checking the 3ds max work file which was rendered from looking for answers to why this was happening. No answers to be found.

It was decided to render at higher settings. Going for 8-9 minutes per frame, but decided to switch filter from Lanzcos to Mitchell. The differences are that Lanzcos gives a more crisp render of textures, but gives poor edges. What Mitchell does is the opposite. Gives you that smooth clean edge and a bit of a blurry texture. Not too much too be bothered with though. Now the render estimate would be end up being done in five days, but actually there were plenty of frames that only took about five minutes to be finished so it was all done in 32 hours.



Fig.32. Final render. Beauty pass with shadows and reflections.

Just before starting a beauty pass render a Z-depth pass was being enabled for use in post production. So at the same time a beauty pass was being rendered a Z-depth would follow at the blink of an eye. This pass will help blur out the objects in the background and also function as a depth fog pass.



Fig.33. A Z-depth pass.

One more pass was needed. There is always a need for an ambient occlusion pass. So what is ambient occlusion? It is quite simple. Picture a scene full of objects being all white. Now all those objects interact with each other. That interaction between the ones interacting with each other will leave a darker surface than white. Say a stick stuck on the ground. There will be left a small dark surface at the area where the stick and ground intersect judging by the value of the radius sampling. The lower the sampling radius means a more darker surface, a much harder compact area. The higher the sampling radius the softer the dark surface gets, much more spread out. Why render a pass such as this? It will improve your shadows, give more depth and really helps to better show all the details of your models. For this project a value of 300cm was chosen. It is a high value sampling radius meaning getting the dark area spread out to become soft.



Fig. 34. Ambient Occlusion pass.

3.6. Post-production

After rendering out all the passes from 3ds max it was straight to after effects and start tweaking the colour scheme. Before continuing on start with only working on the beauty pass. Tweaking it so that you have a good starting base which is better than it is makes the end result look better. Now one of the first things that were done was to adjust the levels of the original images. This will result in making the images brighter or darker.

Next up is to add a film grain. Now why is film grain needed? It seemed needed for this project. Looking at the beauty pass you can see it is as clean as a digital image can get. So to make it a little bit messy add a noise filter in after effects to get that high-ISO film grain look. The amount of noise is quite low so it is not quite visible at the first look.

A Vignette border was then added. Now a vignette is the dark border around the image. This is so that you get more focus in the middle of the screen. You get a sense of direction of where you need to look at. Also it helps to get the bright areas around the border to be darker. As it would distract the viewer if not added.



Fig.35. and 36. The same frame with and without vignette added. Notice the corners.

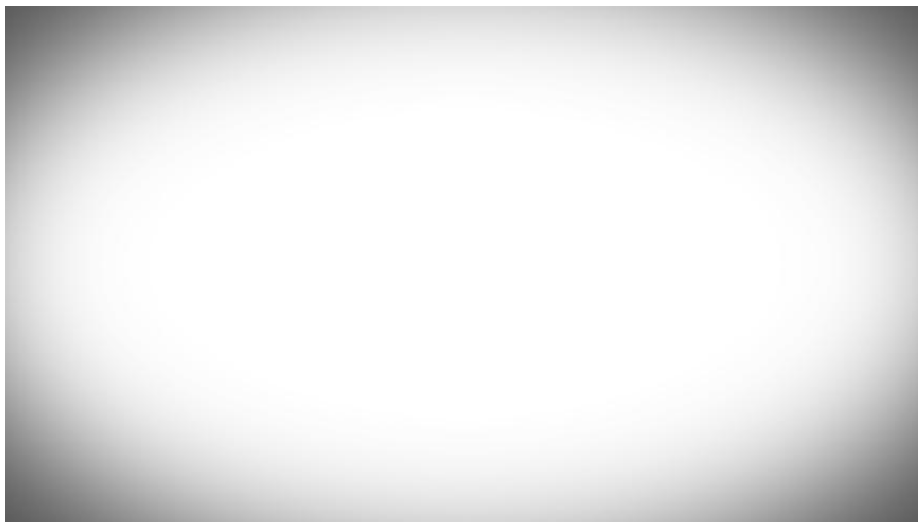


Fig. 37. The vignette layer.

Colour correction needed to be done. There was added a more sepia look then the original image. It also helped to give it a bit more warmer feeling to the environment. When doing colour correction it is wise to look away from the computer screen regularly. This is because your eyes will adapt to that image and cause you to be blind to changes for the better. This tip was not taken into consideration until after some time doing colour correction. It helped to focus your eyes on a completely different colour scheme.



Fig. 38. and 39. Before and after colour correction.

Also the decision to desaturate the image was made purely on preference. Not wanting to have too intense colours in the environment. The scene looks more interesting that way. Being more greyish.

Before continuing on adding the music the need for the film to be finished was necessary. Meaning that the intro and outro was to be added. All timed up properly with all the layers.

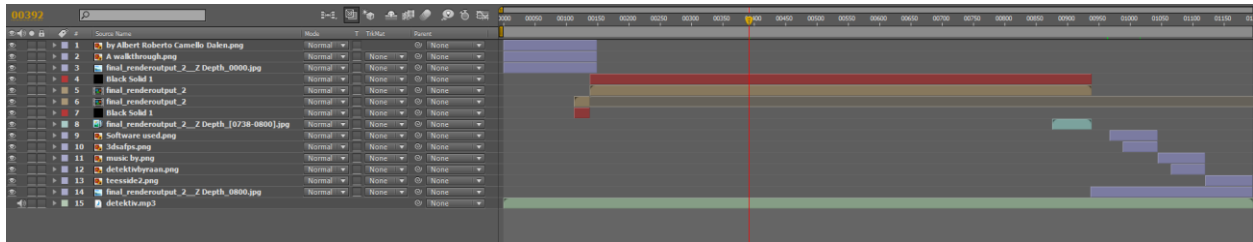


Fig. 40. Layers.

The blue layers are the intro and outro with the background and text on separate layers for more control. The red layers are the vignette. The brown layers are the actual film where all the effects are placed on. You can see that the second red layer is placed wrong. It should be placed on top of the second brown layer, but this does not matter because it is not noticeable in the while watching the film. The last layer, the green one is the audio.

Now since the film is all done now all needed is to add music. Moving out from after effects and on to premiere was a necessity as you cannot listen to the audio while viewing the film at the same time. In premiere you can do so. It is easier to edit and cut clips in premiere. What was needed to be done was to make the music start at the same time as the intro of the film, but not as sudden as. There had to be a short fade in and also a fade out at the end of the film. There had to be an adjustment for the beat of the audio clip to match the transition from the intro to the actual footage.

4. Review

4.1. Limitations

While modelling the environment at the end there were signs of the computer lagging a bit. Which was very odd as it is a brand new Alienware Aurora newly bought for the sole purpose of handling a demanding scene. With a poly count of an estimate of just under 1,5 million poly count. Now this is a quite demanding scene for any computer to handle, but as it is a state of the art new computer with the newest components with four cores and 8GB RAM. Later on doing research about the problem there were a few answers found in both a 3d magazine called "3d world" and the internet. Article by Pete Draper were he answers a question by a reader titled "How can I make 3ds Max use the full CPU?". This article say it is not possible without doing some work with the BIOS to disable the multi-threading. 3ds max will not utilize the full potential of the computer for viewing that many objects in a single 3d scene. There were no choice in leaving the computer at how it was for the time being. There was just no time for fixing it at that late crucial time. The problem began once the hedge, the trees and the ivy, especially the ivy came into the

scene. Since they are instanced to each other and there were cloned quite a lot to resemble real foliage.

Being one person sure puts one at perspective once you get started. It did not take long to realize that the project was too big for one student. There were no chance in this world that a project with this large scale and ambitions was going to happen. Immediately short the distance the camera would travel from A to B even that seemed too much for a student. Even removing elements that were going to be animated. Like the bird, flames, wagon collapsing, fruits rolling down the hill, that kind of elements.

Early on in the production phase there was a little misfortune. Being sick with the flu ever since before the production phase began. As it got worse there were only one solution and that was going to the doctor and have a check up. Being diagnosed for having acute bronchitis was worrisome. Not being able to work as the medication made the body tired, sleepy. Just by sitting in front of the computer hurt the spine and legs. Two weeks of nothing. Also the medication received gave an allergic reaction. Funny how being ill can set you back as much as it did. Being behind schedule at the very beginning was devastating. Motivation dropped all because of being worried that this project would never be done and of course thinking like that it becomes real. So it was a slow process in getting into the workflow. By the limit of the days given it was a shame loosing so much.

Even after catching up to the schedule things like having to re-render the project sets you back and stresses you out. It is just so frustrating that small problems like the lights getting all messed up with small render settings. Just the feeling of wasting time rendering which could have been avoided if the thought of checking the entire scene for faults by rendering single frames different time with that setting.

4.2. Strengths

Modelling would definitely be one of the strengths as a skill. Being able to produce detailed models fast is by no doubt a superb skill to have. Also meaning that one is be able to analyze an object thoroughly. Completely understanding the shapes of the object and copy it in 3d space. Having a good understanding of depth of the object. Also a skill where you combine different design together and even creating new ones.

A strength of knowing the basics of lighting. Knowing how it interacts in the environment around us. This interacting with colours. Seeing how lights change the colours for the good or bad. Deciding on whether to have gamma on or off and on 2.2 or a value of your preference.

Another strength is the will to learn. Looking at tutorials both found on the internet and in

magazines. Not just to copy them but learn how to use those techniques for other purposes. While working on shaping objects it is quite handy to have a tutorial video in the background. So when something unknown gets mentioned it triggers something in your head. You get ideas for how you could use that persons skills and apply them to your own project. To be a good modeller one has to be curious about his surroundings and keep looking at objects. The same goes for an animator and a texture artist. Keep looking at references in daily life.

4.3. Conclusion

It is evident that this project was successful to some degree of fulfilling the specification set out to achieve. Not being completely satisfied, but the reason is working alone so the scale of the project was reduced to a smaller project. It was to see what one student can make in the time period given with all the challenges followed. That is why there was some changes being made. Removing some elements was needed. It was considered wrong to remove some of the key elements, but it was due for the sake of the project. Only to have a walkthrough through the street would be the most important from the specification and also having a high quality objects. Removing some animation work. This was smart since there was not that much time for animation in the end. If this was a group project it would have been a lot easier having someone take care of the animation, a couple for the modelling and texturing and so on, but since this was a solo student project it was due to lack of manpower to why it was scaled down.

Also one more point from the specification was to learn more about lighting and post-production. This was achieved. A deeper understanding with the lighting and all the elements within. The same with post-production. A great deal was learned to why we need some render passes to achieve a certain look and to why things are corrected in compositing.

No matter the skill level you have there is always something more to learn or a deeper understanding to gain of something you already know. You can never stop learning and improve your skills, both practical and theoretical.

5. References

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6. Appendix

6.1 Specification

Goal:

My goal for this project is to enhance my modelling and texturing skills as well as challenge myself in the lighting and post-production (compositing) area. In short this will be a high quality project.

Project:

In this project I will create a 3d environment with high quality standards inspired by a game and make a short "ride film". The ride film will consist of you (the audience) walking around the environment looking at all the details all around. There will be a secondary animation in it as well to bring life to the environment. No story will be followed throughout the film, but there will be a history in the environment.

Research:

My research will mostly come from the internet, books and magazines. I will also focus on getting knowledge from people in the industry or at least those who has any experience in the area of post-production and lighting.

Stages:

Stage 1 – Research about the era I will create. Concept designs, top view city plan.

Stage 2 – Modelling and texturing (Using tools like 3ds max, Mudbox or Z-brush for modelling and mainly Photoshop for the textures).

Stage 3 – Animation will be done in 3ds max. Fluid, wind, flames, objects will be animated.

Stage 4 - Lighting the environment in 3ds max.

Stage 5 – Render all the necessary passes (Ambient/Occlusion, Shadows, Diffuse, Lights, etc.).

Stage 6 – Compositing in either After Effects or Nuke.

Stage 7 – Putting all the final images together in Premiere or a program more suited for the purpose.

Schedule of the stages:

1 – 2 weeks

2 – 6-8 weeks

3 – 1-2 weeks

4 – 1-2 weeks

5 – 2 weeks

6 – 2-3 weeks

7 – 1 week