

Production Diary

L5 - Creative Practice 3 (M5X01568)

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Creative Computer Games Design (CCGD)

Week 1: 1st - 7th Oct

Started coming up with ideas of the racing game. Passing ideas about it either being a hover game or a wheel-based game. Finally landed on a hover racing game with multiplayer. Having 3 different styled maps around one theme.

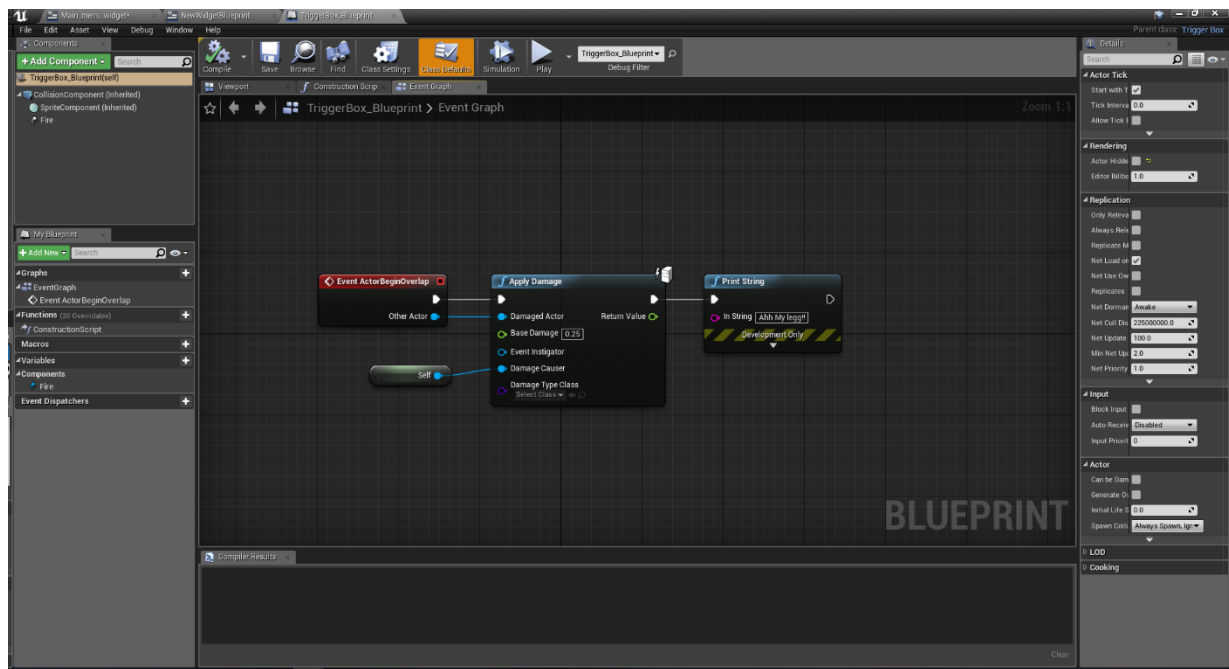
Week 2: 8th to 14th Oct

Continued with coming up with ideas and expanding on them as a group. Defining the themes for each level. A Neo Tokyo, Steam Punk and Overgrown theme. Each level would have a specific vehicle designed and themed around it. Finalized on the name of the game "NeoDrive".

Week 3: 15th to 21st Oct

Started sketching ideas of possible car/ vehicle designs, Environments and designing the course layout. Brainstormed ideas about events that could happen in game to make the race more difficult and challenging "Using trigger boxes to cause events".

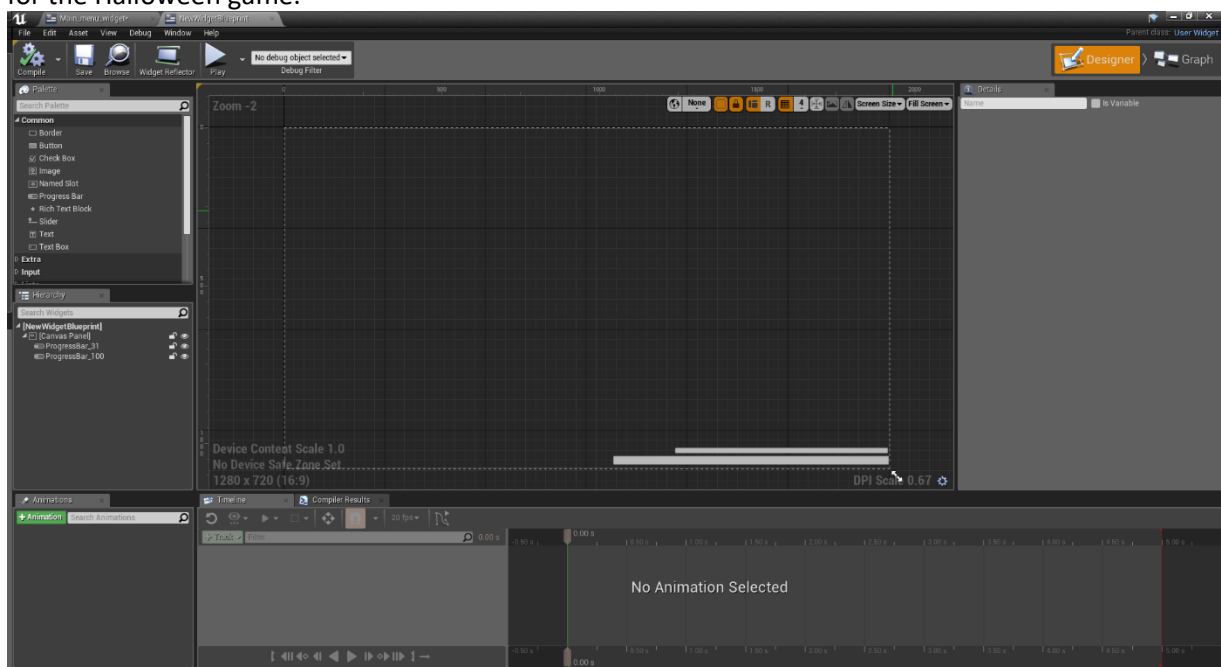


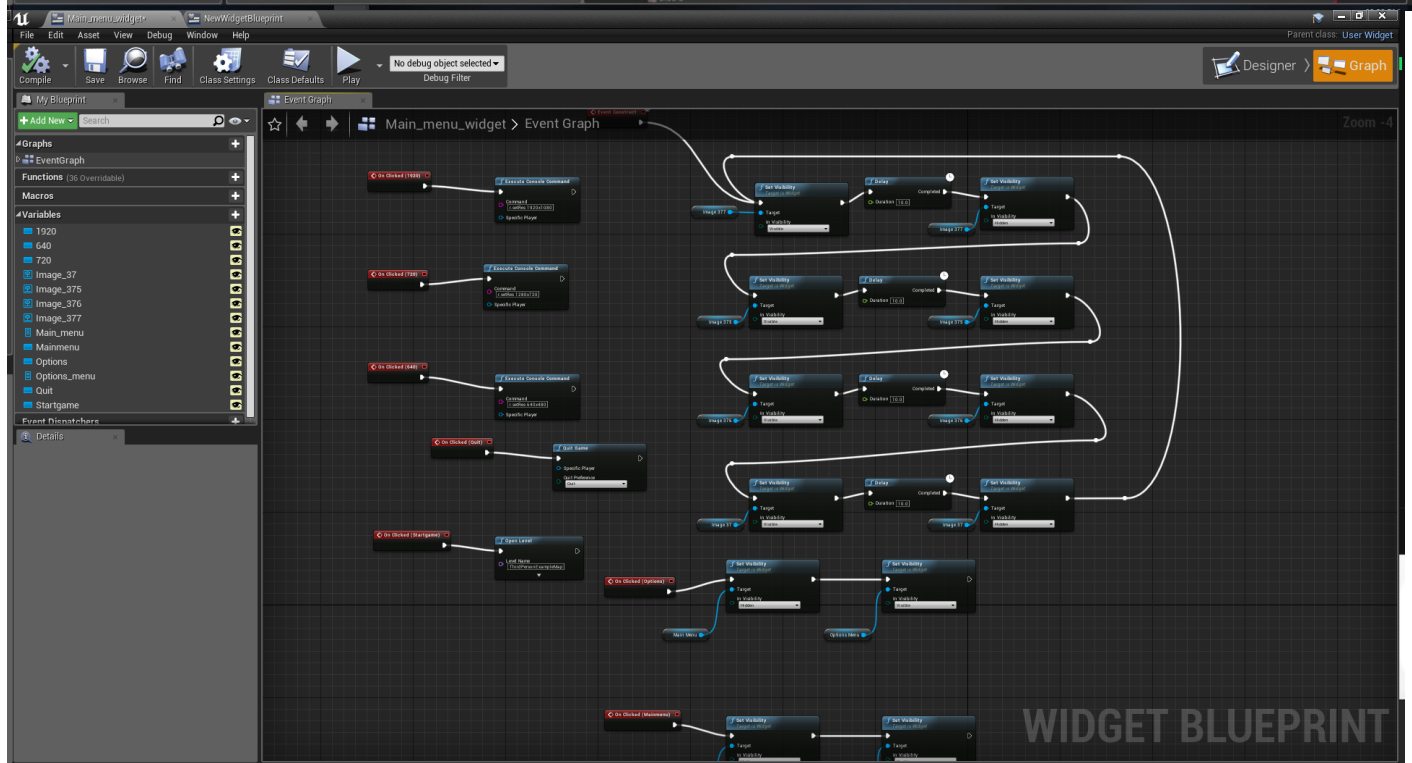
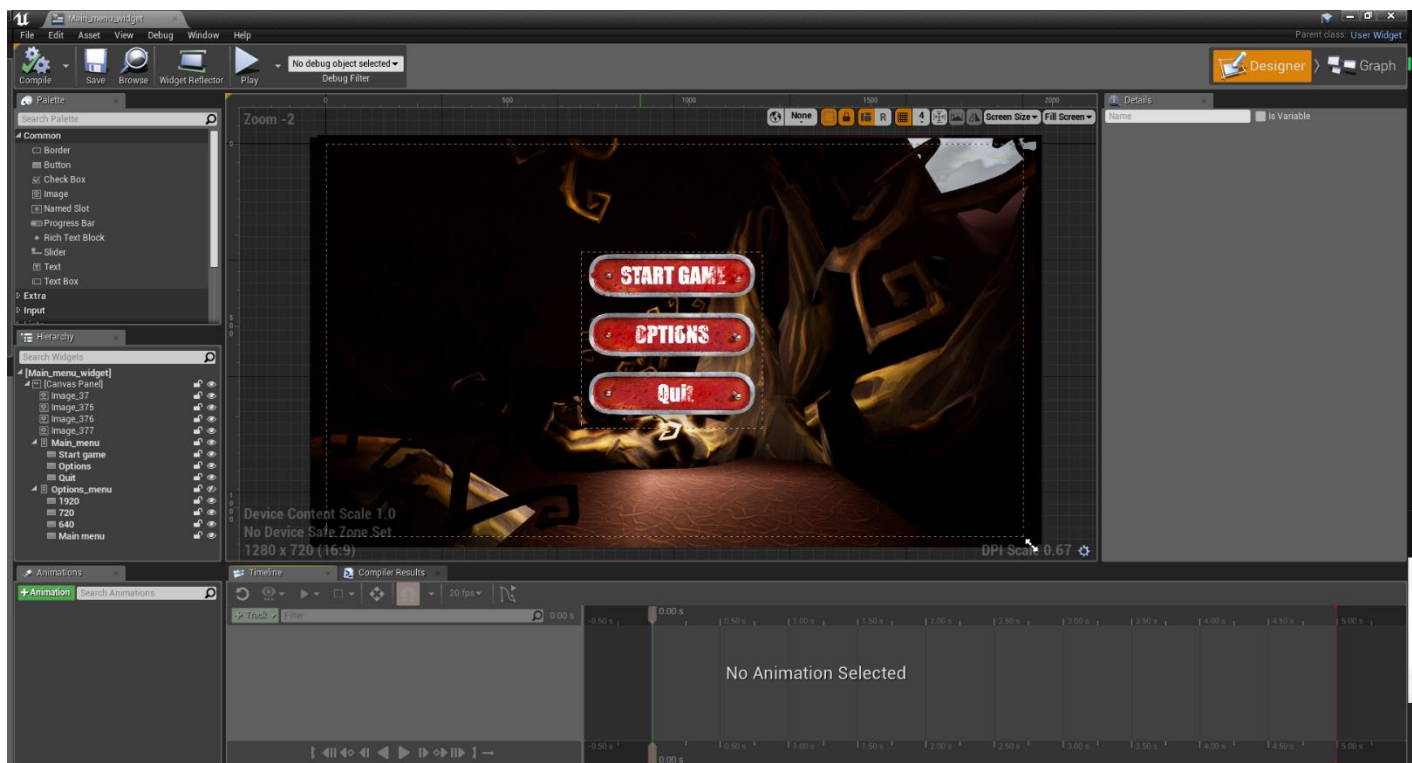


I worked on the Halloween level creating a simple trigger box that would damage the player if they walked into it. I can then use this in the NeoDrive game as an event starter.

Week 4: 22nd to 28th Oct

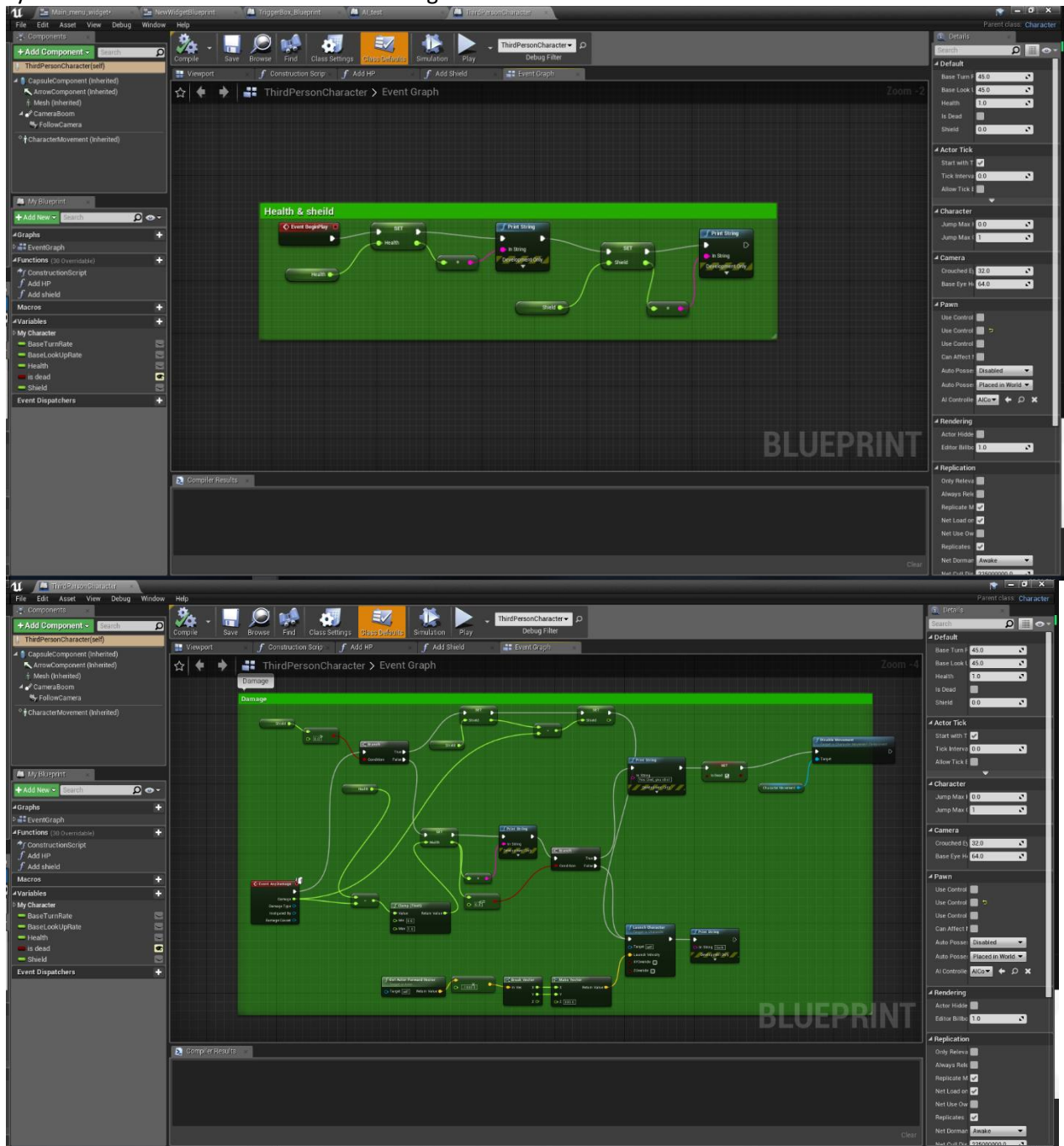
Continued working on the layout of each level. Finalizing sketches and started working on some concept art. Started creating Gantt charts and priority lists. Started work in engine learning mechanics and creating a health and damage system as well as an in-game HUD. I also started work on a menu system for the Halloween game.



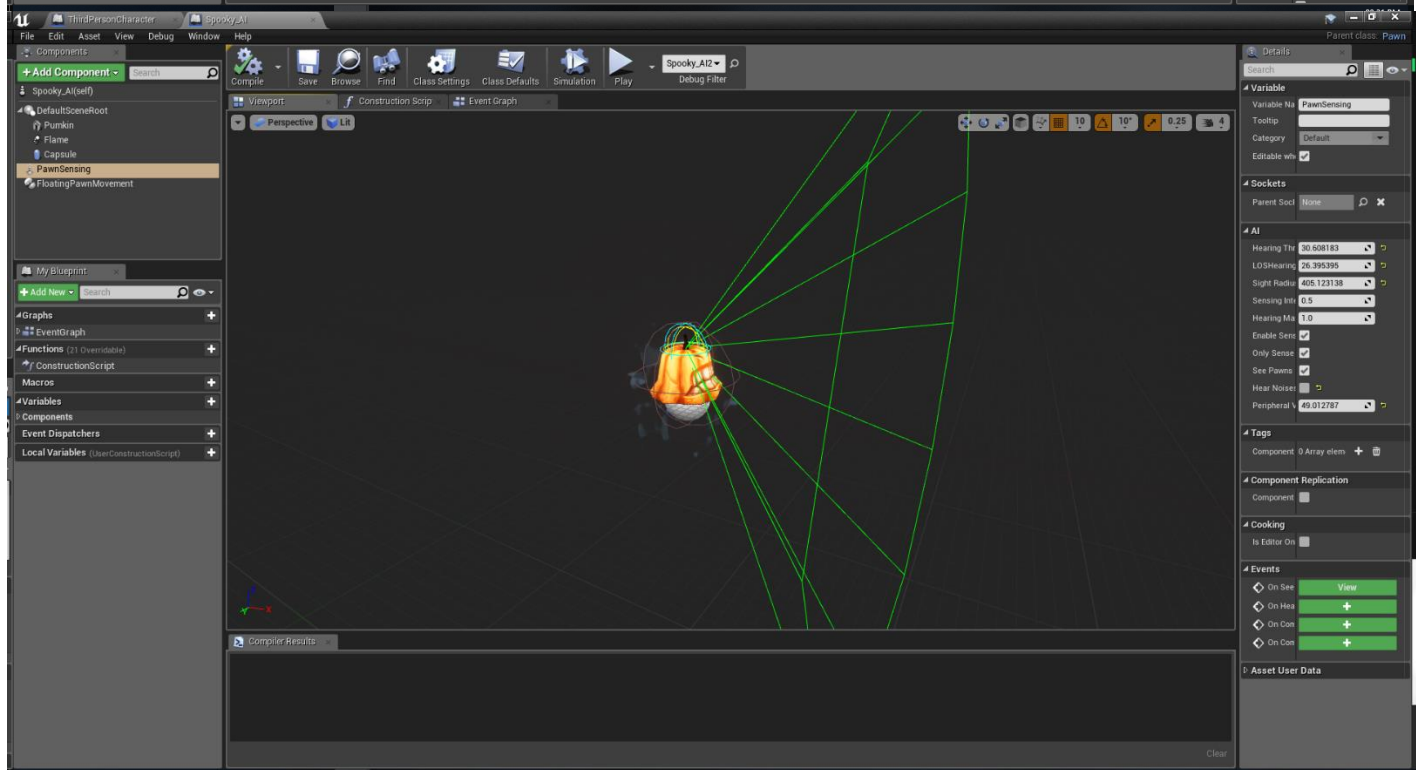
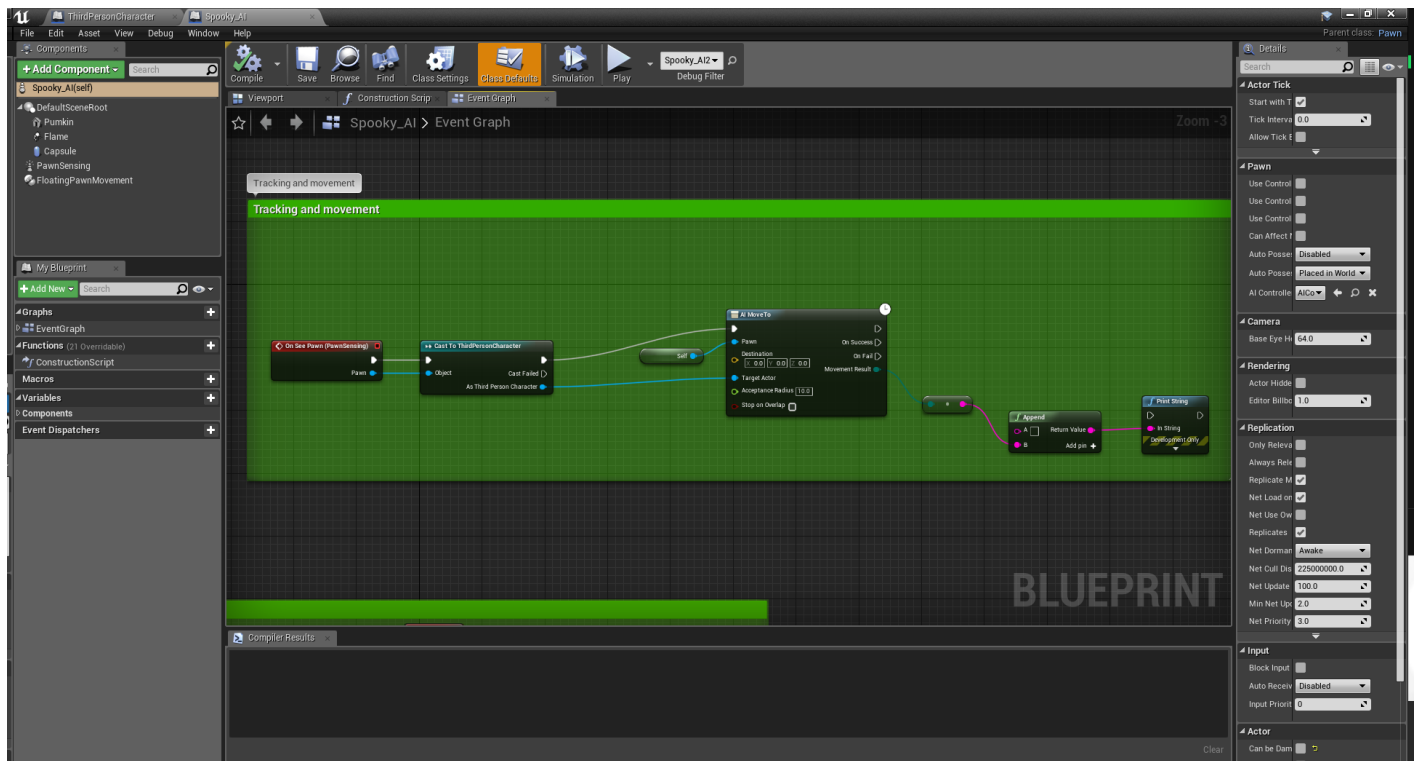


Week 5: 29th to 4th Nov

Started working on the health and shield system using a Halloween themed game/ map. This have taught me how to create a health system which can later be used in the NeoDrive game. The hield system can also be referenced in the final game.

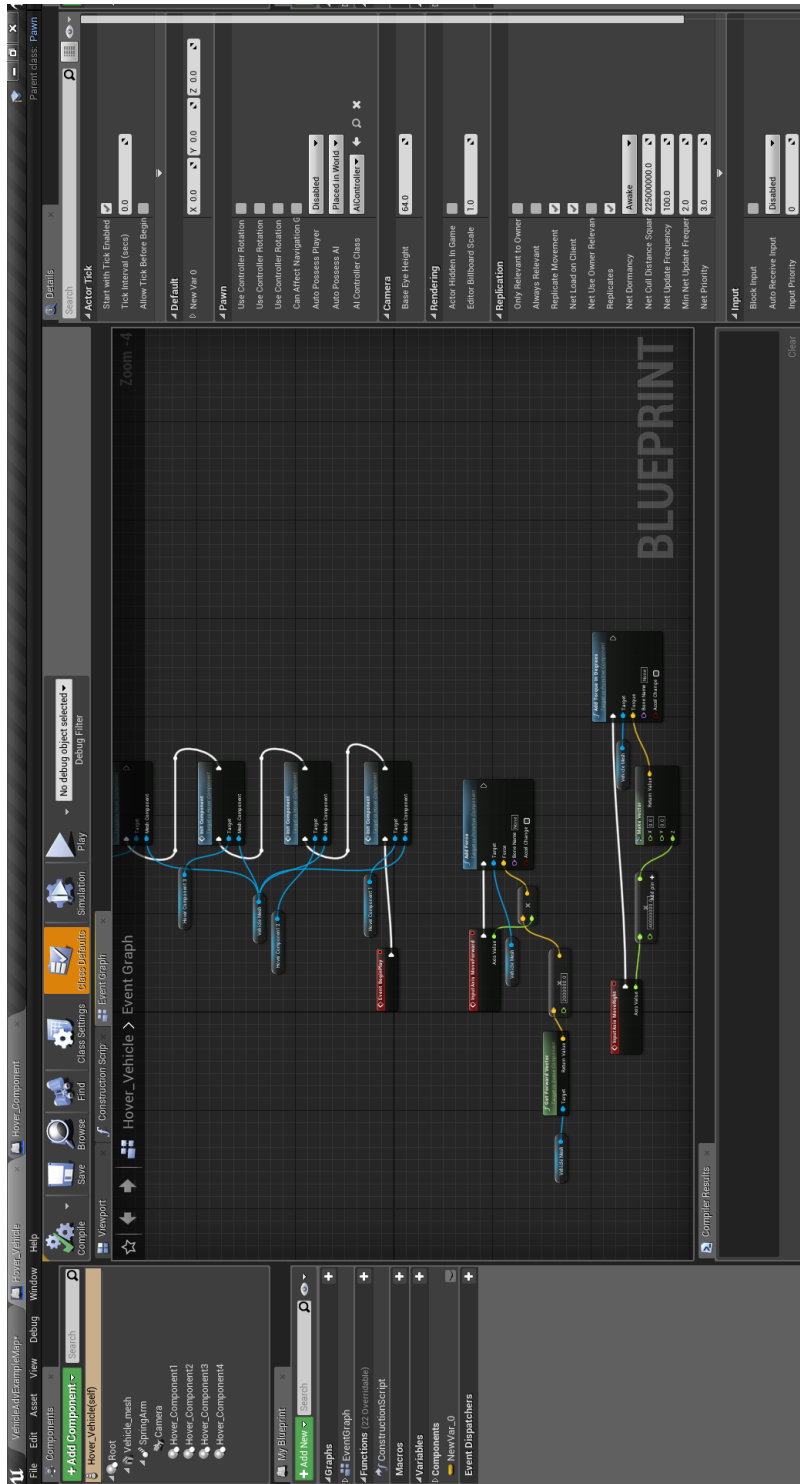


Created a pumpkin AI which follows and attacks the player dealing damage to the players shield and health. Encountered problem where AI would always follow the player even when they were out of its sight.

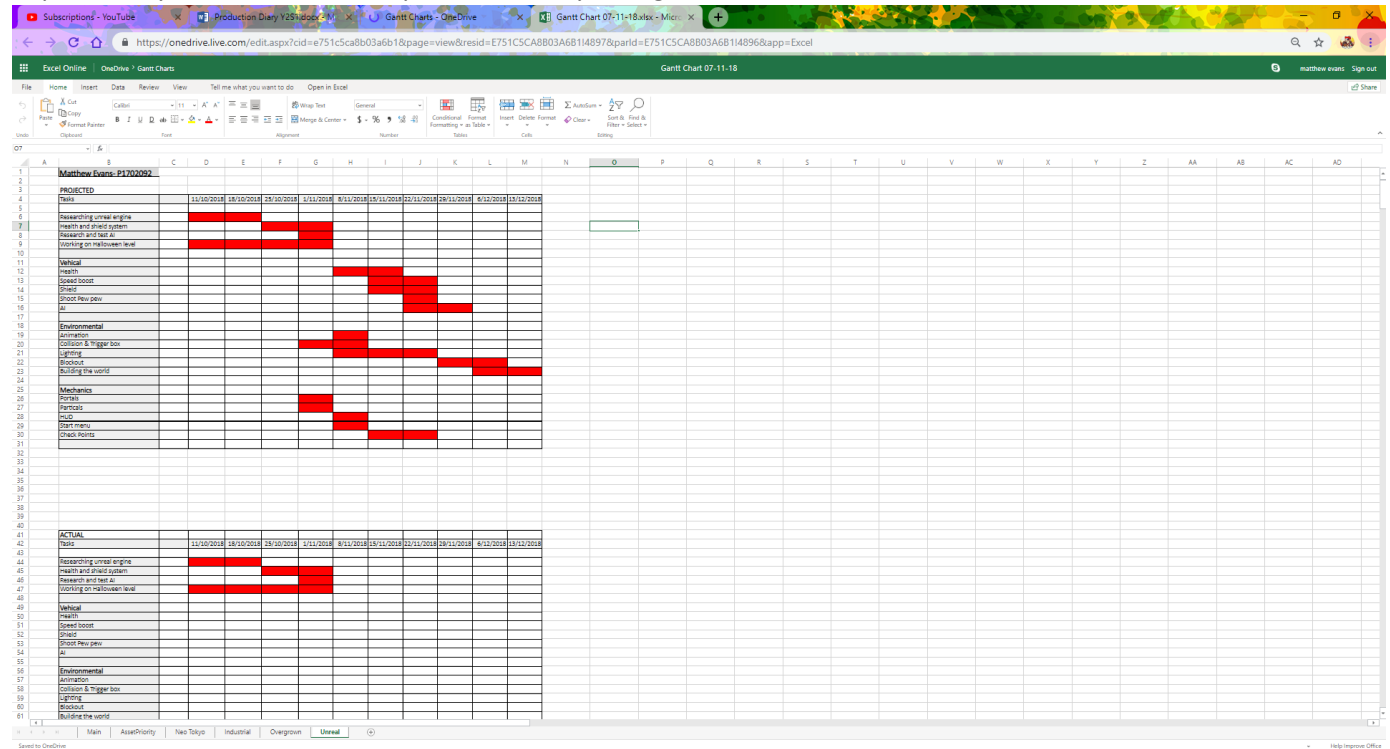


Week 6: 5th to 11th Nov

Started work on the hover vehicle for the game. Used a simple cube and added hover components to each corner and adjusted the parameters. Once that was done, I had to add the player movement to the 'vehicle' by setting the input buttons to give a force to the vehicle. I adjusted the speed to make it faster but this also effected the handling and made it turn slowly. This in turn also messed up the hover mechanics and the vehicle would fly if it went on uneven terrain.



I updated my Gantt chart to compensate for any changes in the schedule.



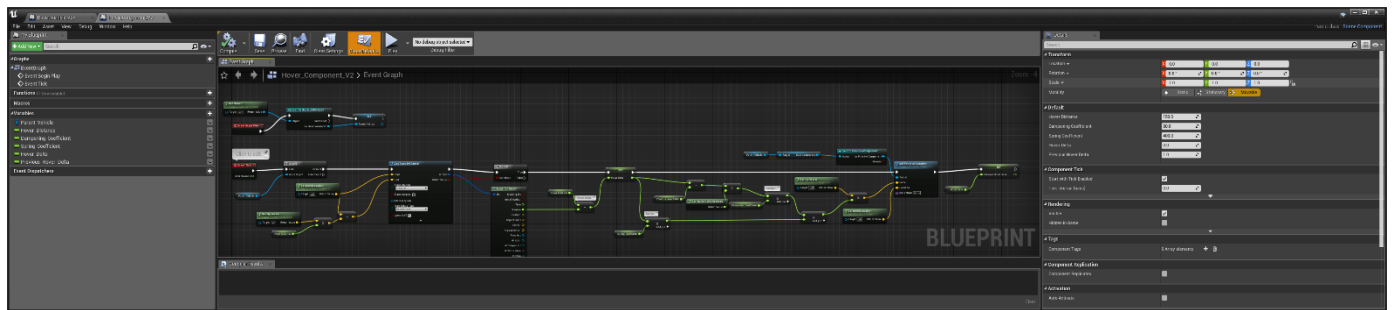
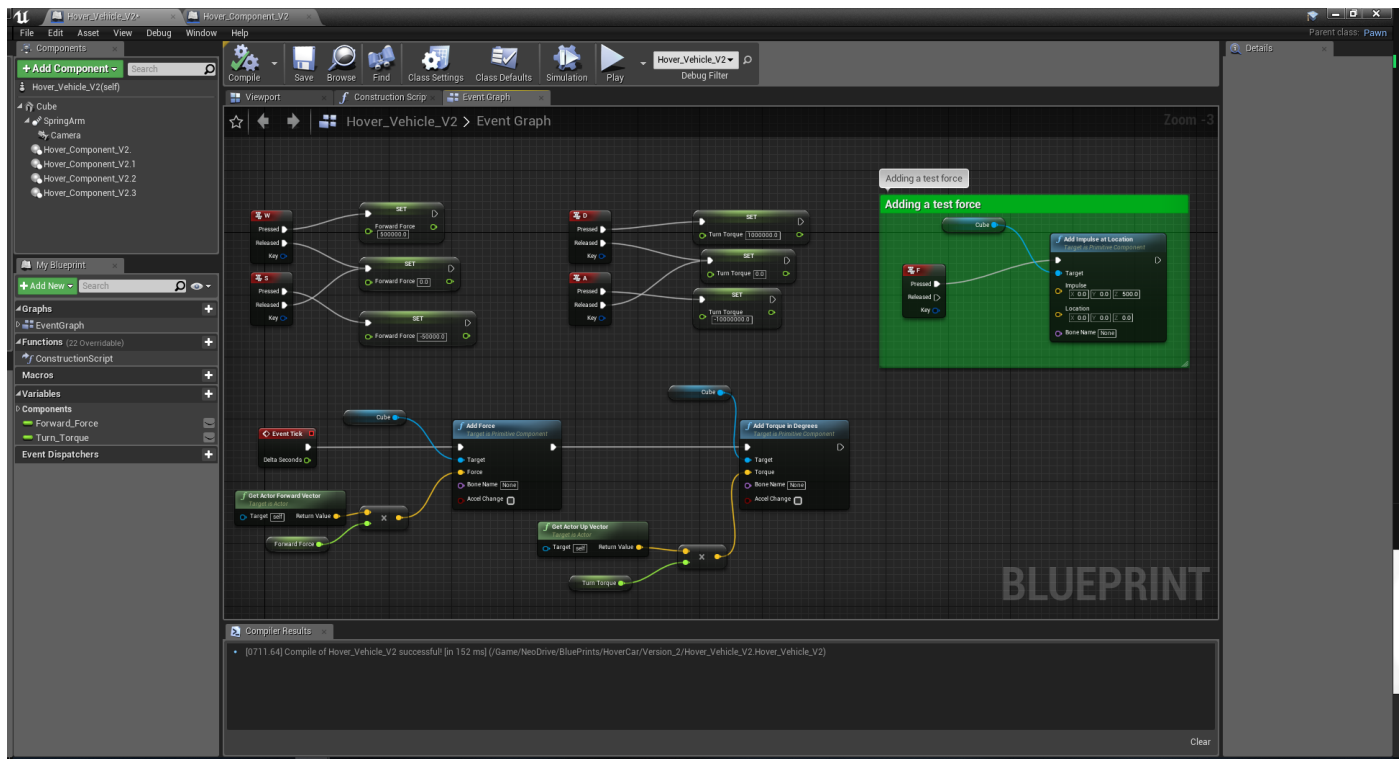
Week 7: 12th to 18th Nov

Continued working on the hover vehicle blueprint. I encountered numerous problems with it. It wouldn't stick to the ground and float off into space when it hit objects or when it drove over uneven terrain. I have watched tutorials and explanation videos to come up with ideas to fix these problems

(<https://www.youtube.com/watch?v=LG1CtIFRmpU>)

(<https://www.youtube.com/watch?v=cPVaDndT7tY>)

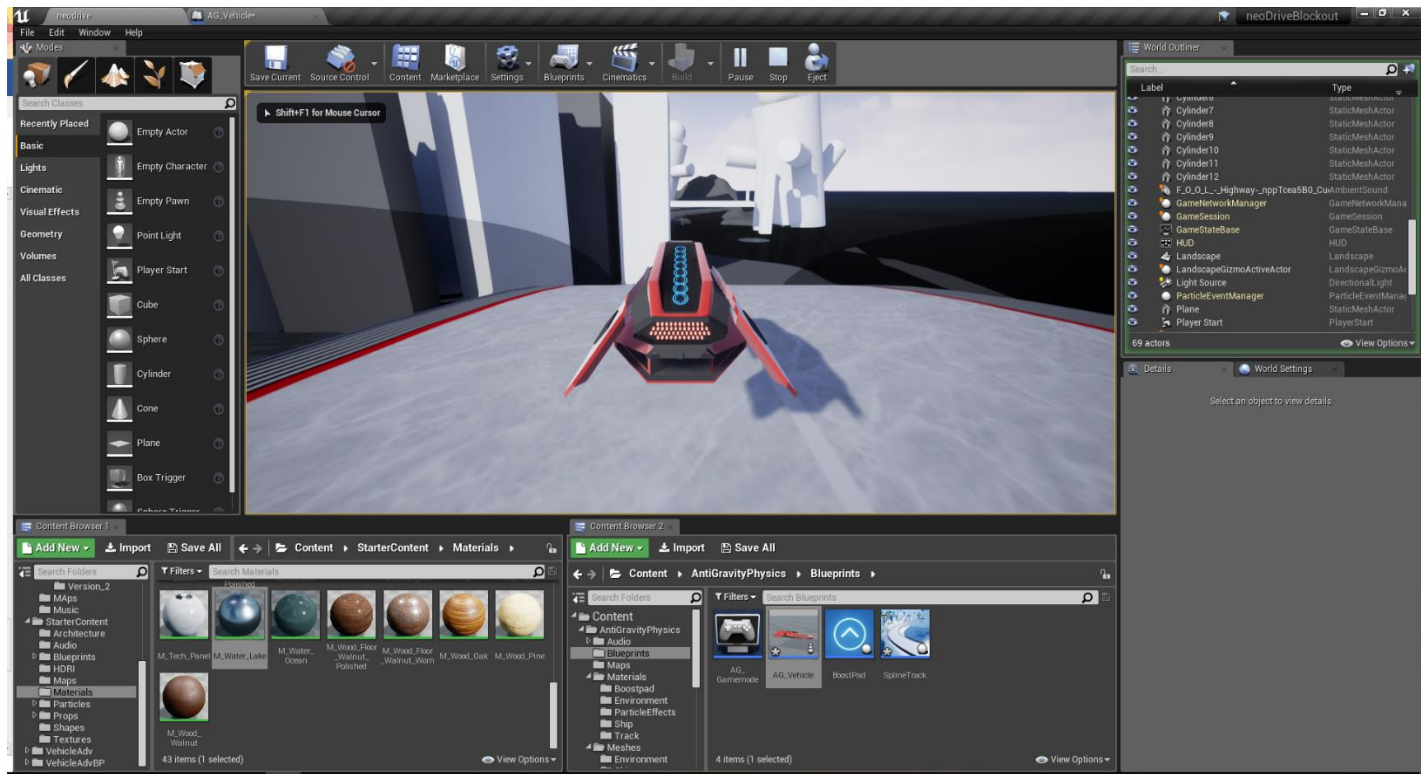
After watching these videos, I experimented with the vehicle to try and come up one that would be suitable for the game that we are making.



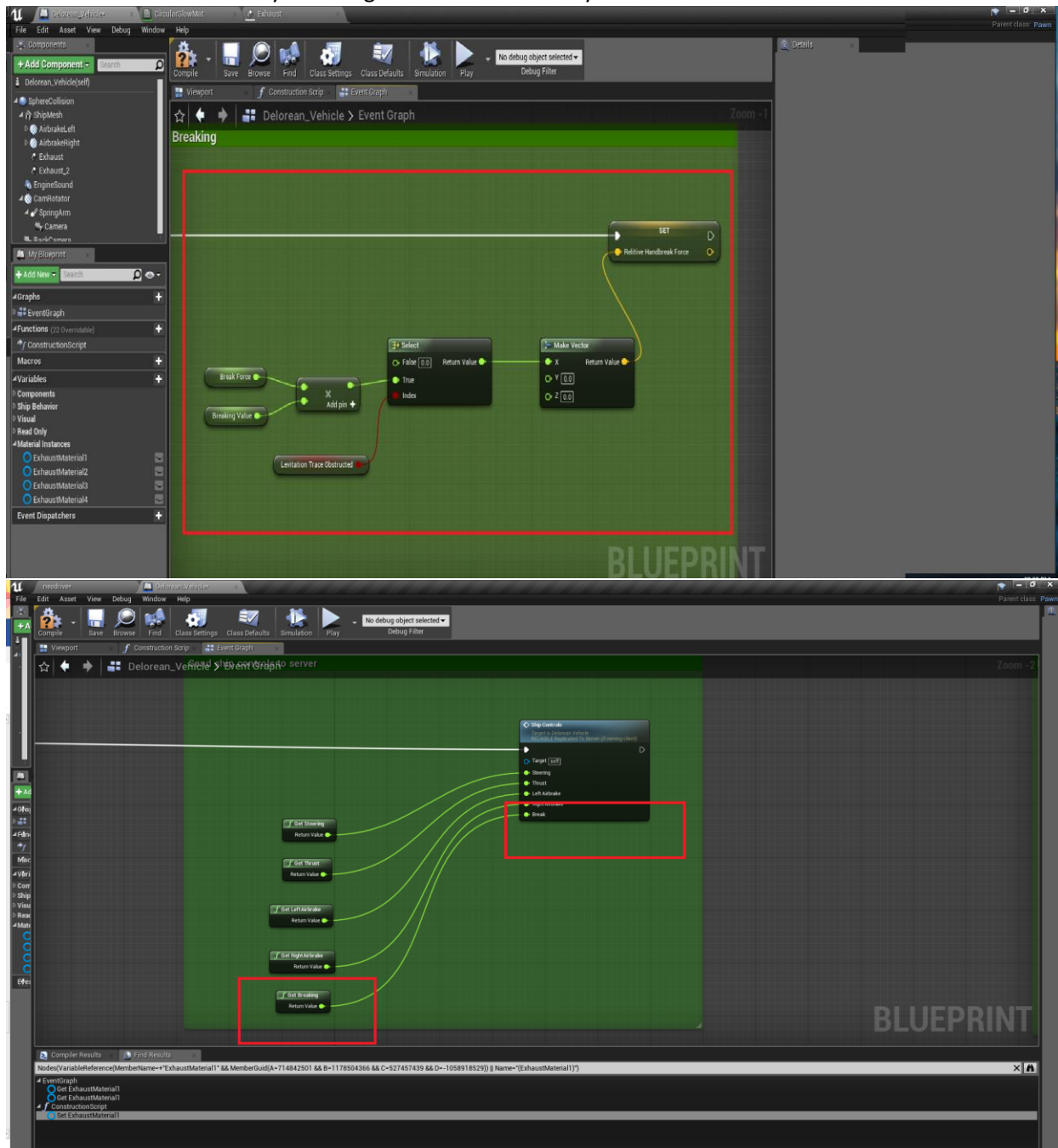
I followed the YouTube tutorial on how to use hover components and applied them to a second hover vehicle blueprint. This one worked better because it stuck to the ground better but it didn't have any breaks or traction, so it would continuously move forward.

Again, this week I updated my Gantt chart with everything I have done this week.

I found this “Anti-Gravity” Blueprint and set on the unreal marketplace and decided to use this to reverse engineer. After more testing with this blueprint set, I finally figured out the mechanics for the hover vehicle.

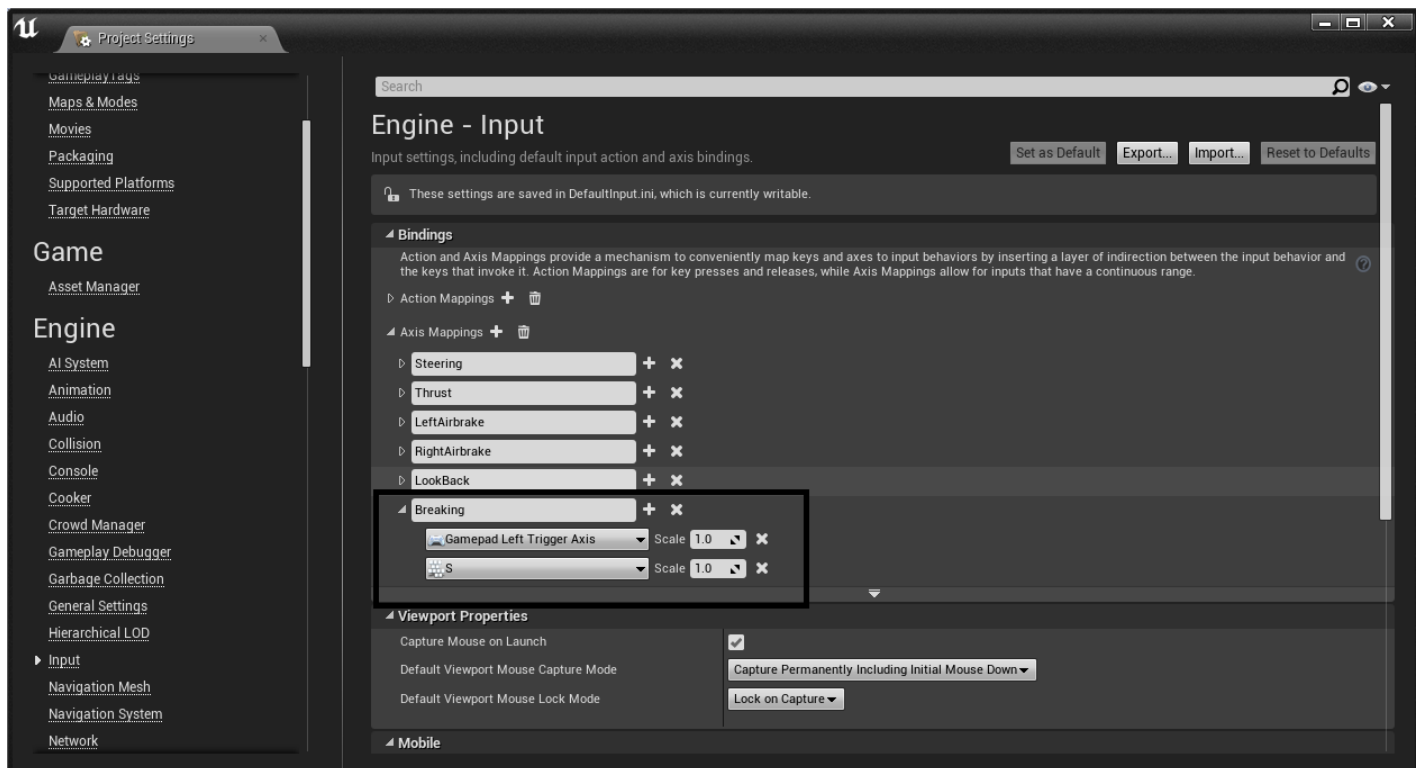
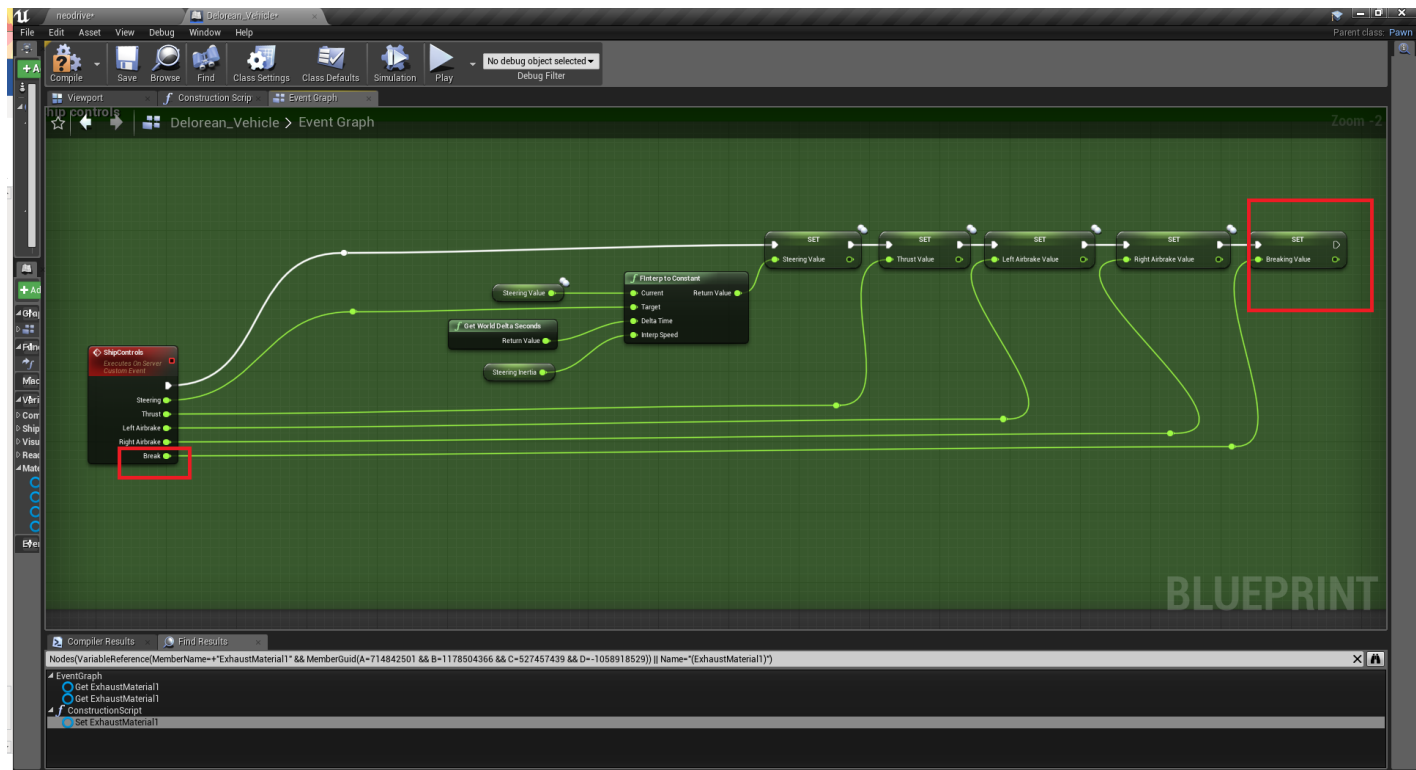


The vehicle didn't have any breaking so I added that in myself. I first added a break force vector.

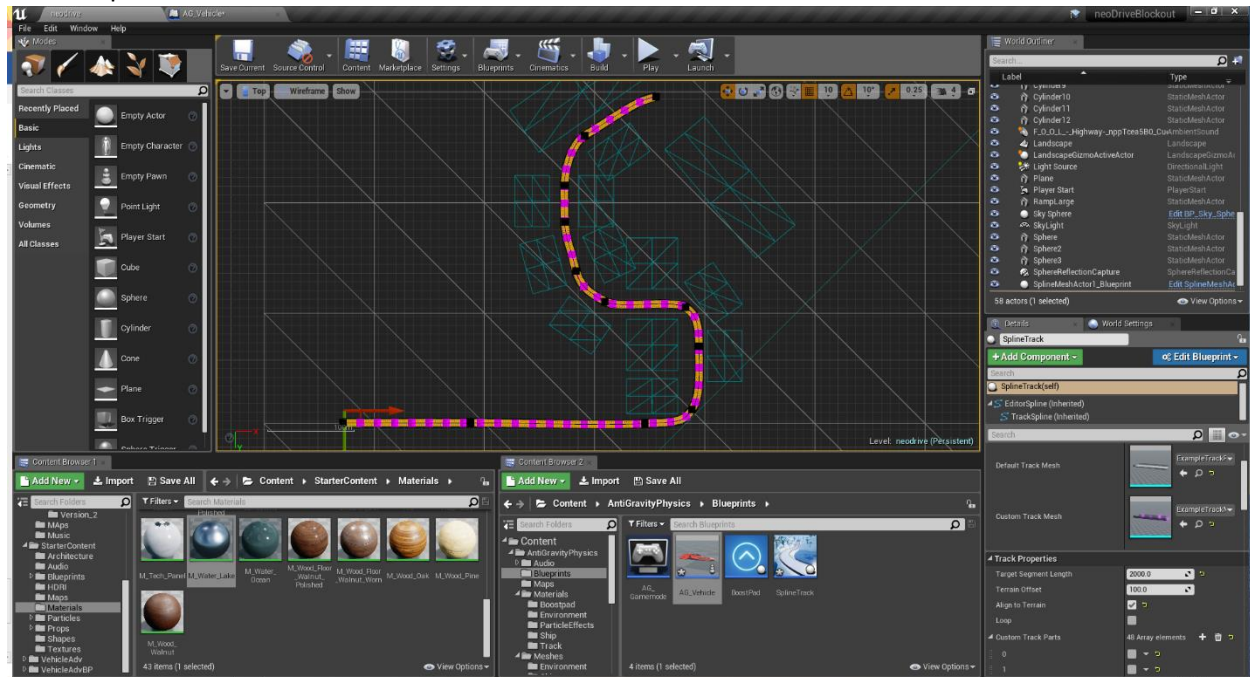


I then took this and added it to the controls of the vehicle. Which then caused a small problem for me. When the vehicle would go backwards the turning axis would be flipped because it was moving in a negative direction. To fix this I added this line of nodes which determined which direction the vehicle is moving in and then flipped the turning axis in correlation to it.

I then set up the controls for the breaking and set them in the blueprint.

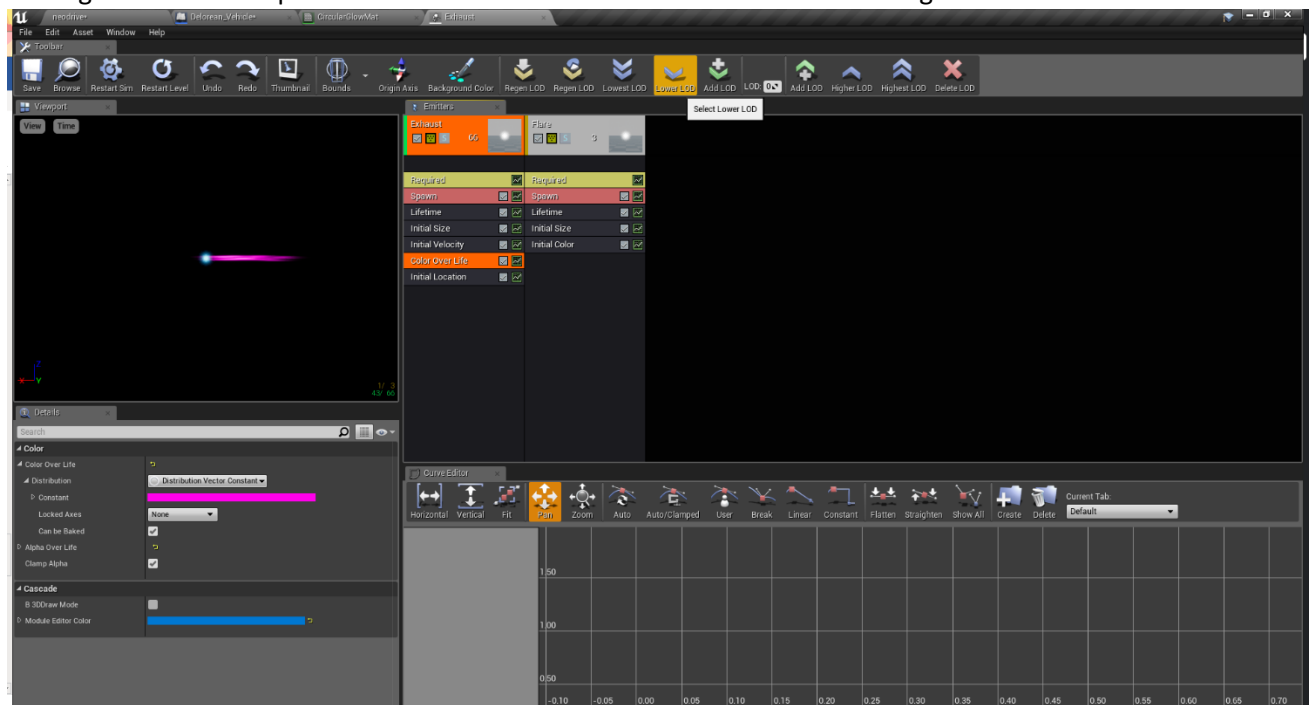


I also started to use the spline blueprints that come with that pack. It works very closely to the unreal 4 default splines but with a few alterations and additions.



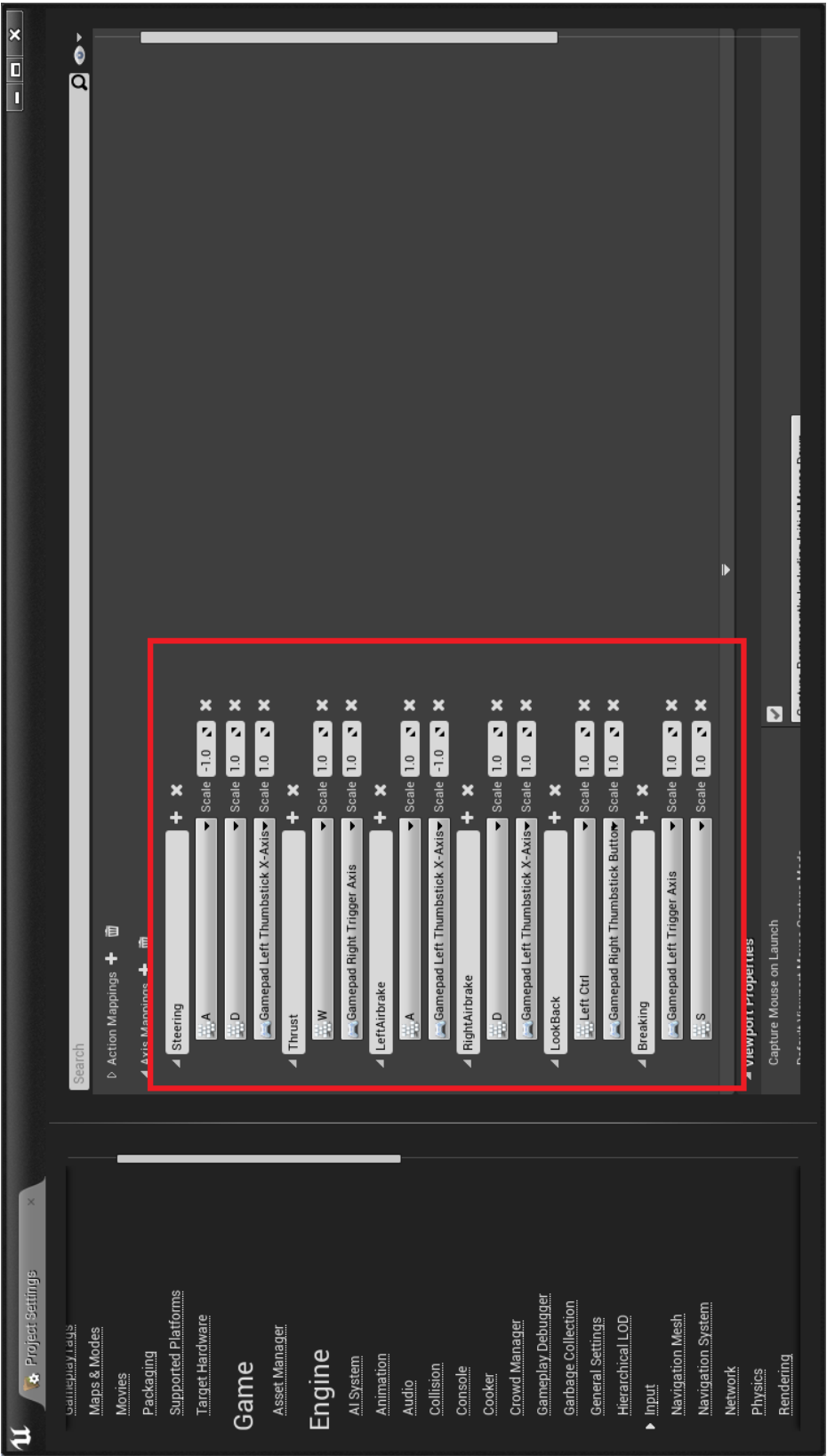
As the game will be mainly played on a controller. I set up the inputs for a controller so that the vehicle would control correctly with a controller. I also edited the air break and turning resistance to make it turn easier in the corners.

I changed a few of the partials of the exhaust to make it fit the theme of the game.

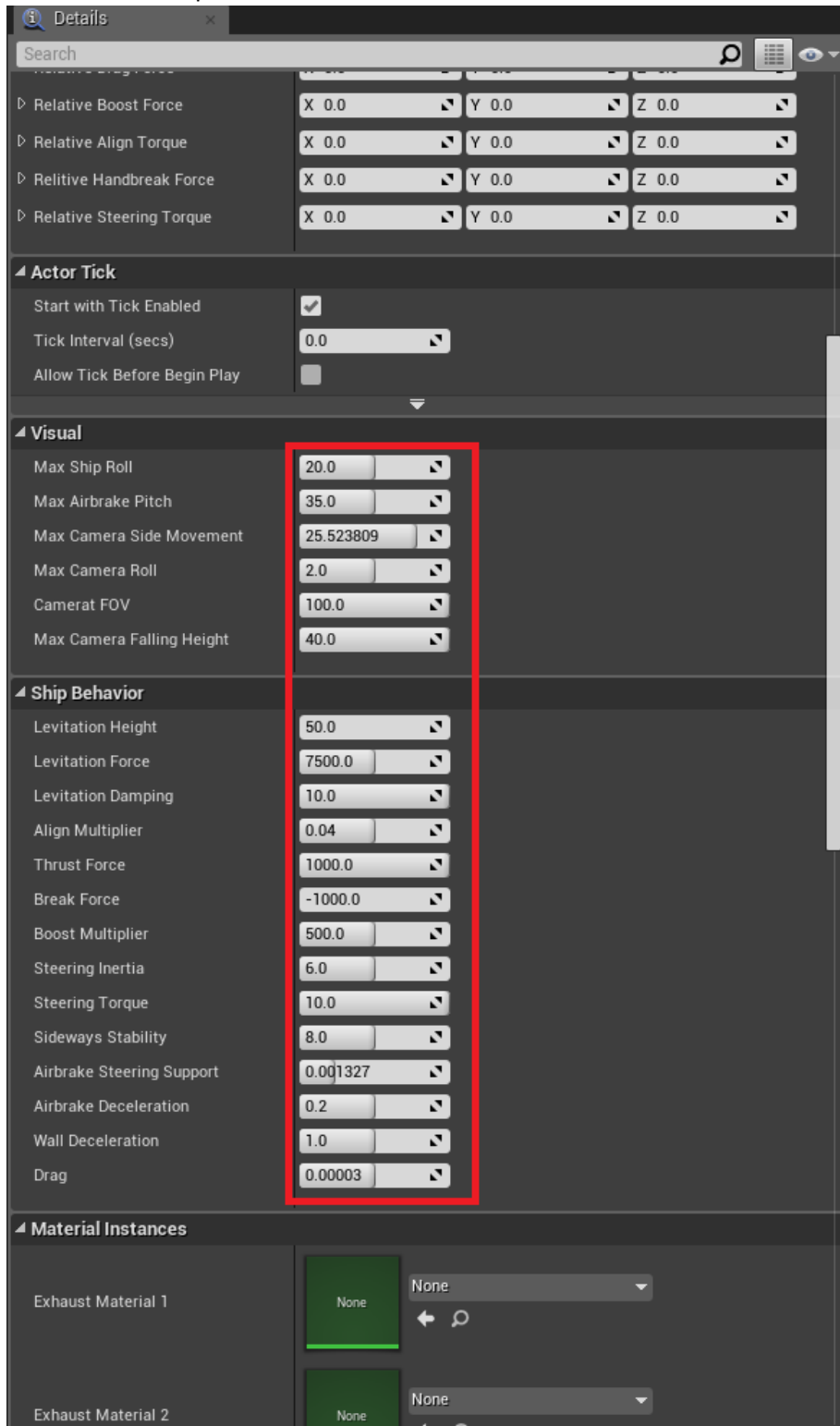


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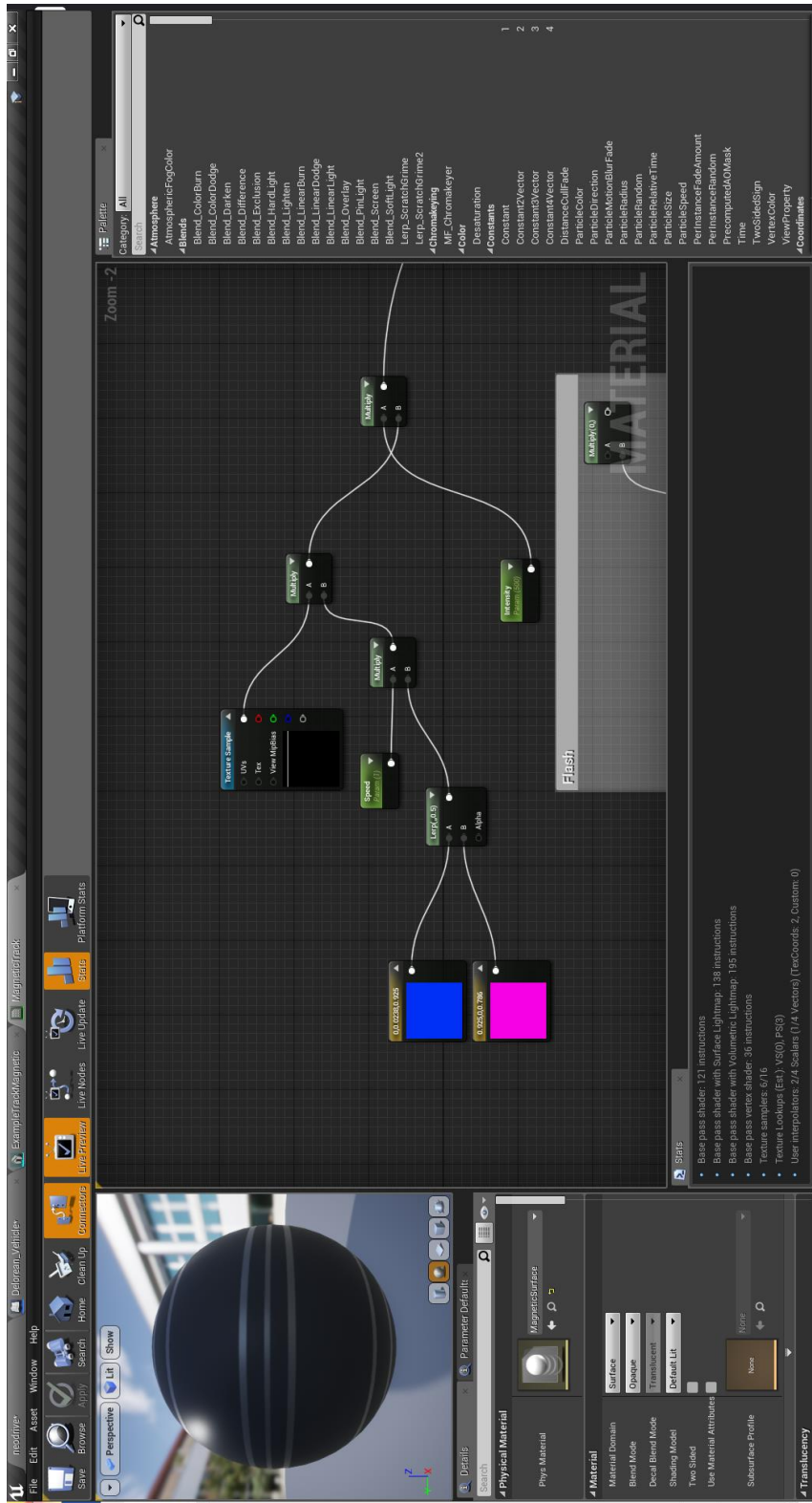
The original control inputs weren't opsonized for a controller so I added them.



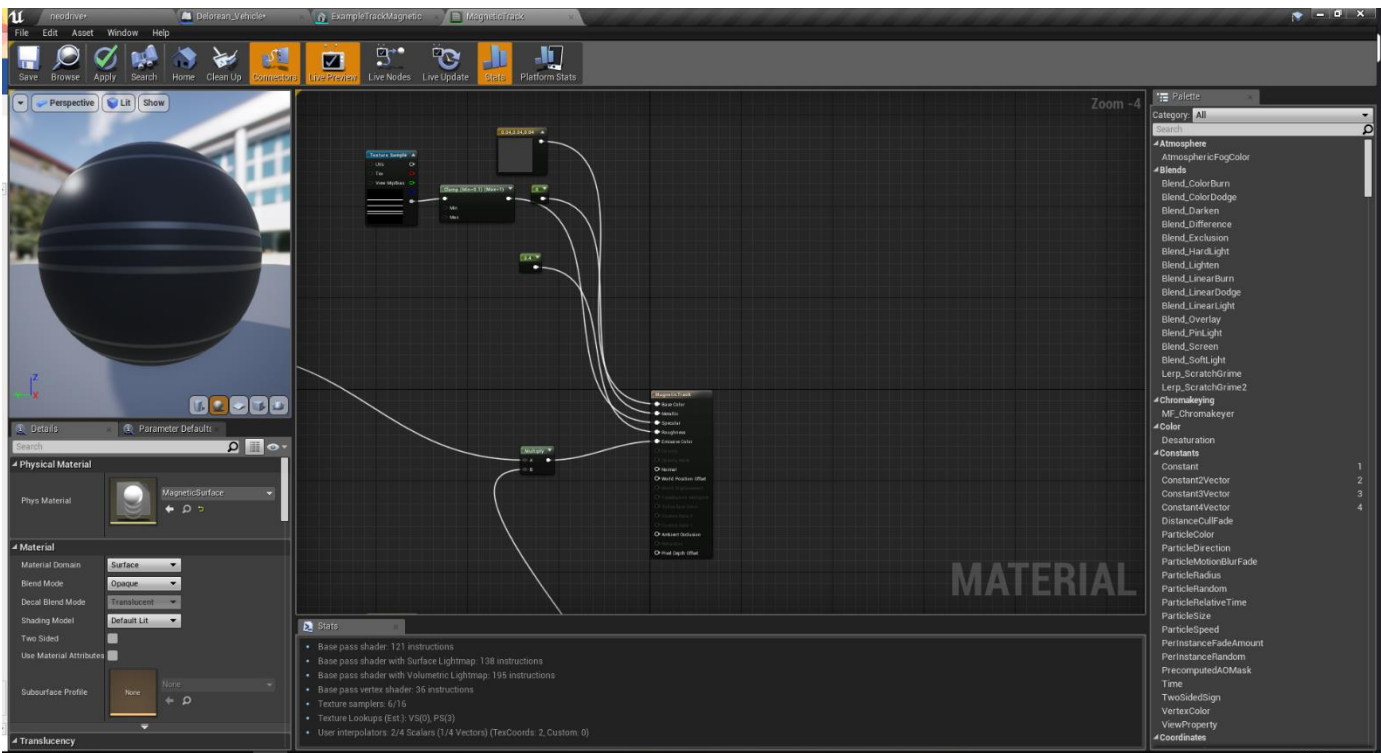
After I adjusted the inputs for the vehicle. I started to adjust the controls and the movement, this gave the vehicle a unique feel and it handled as I felt that it should.



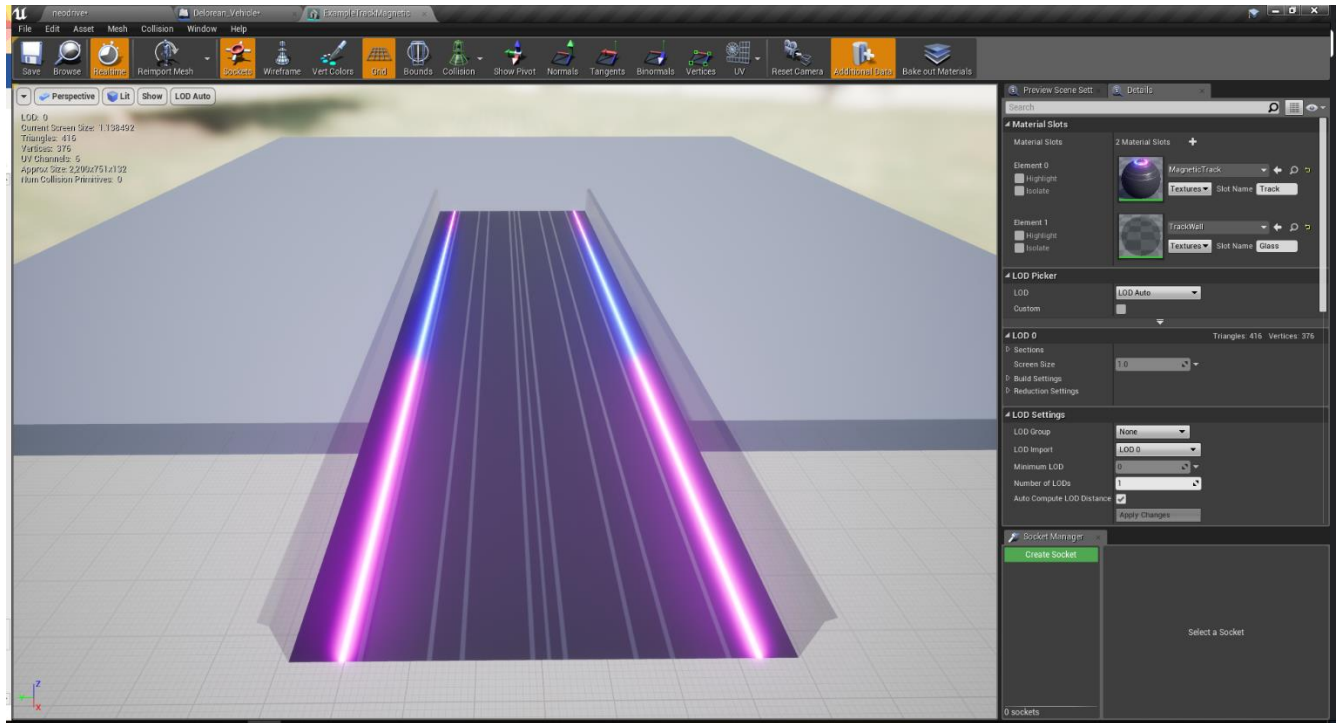
I then wanted the track to have a more neo Tokyo theme so I started to edit the track textures in engine to make them flash pink and blue.



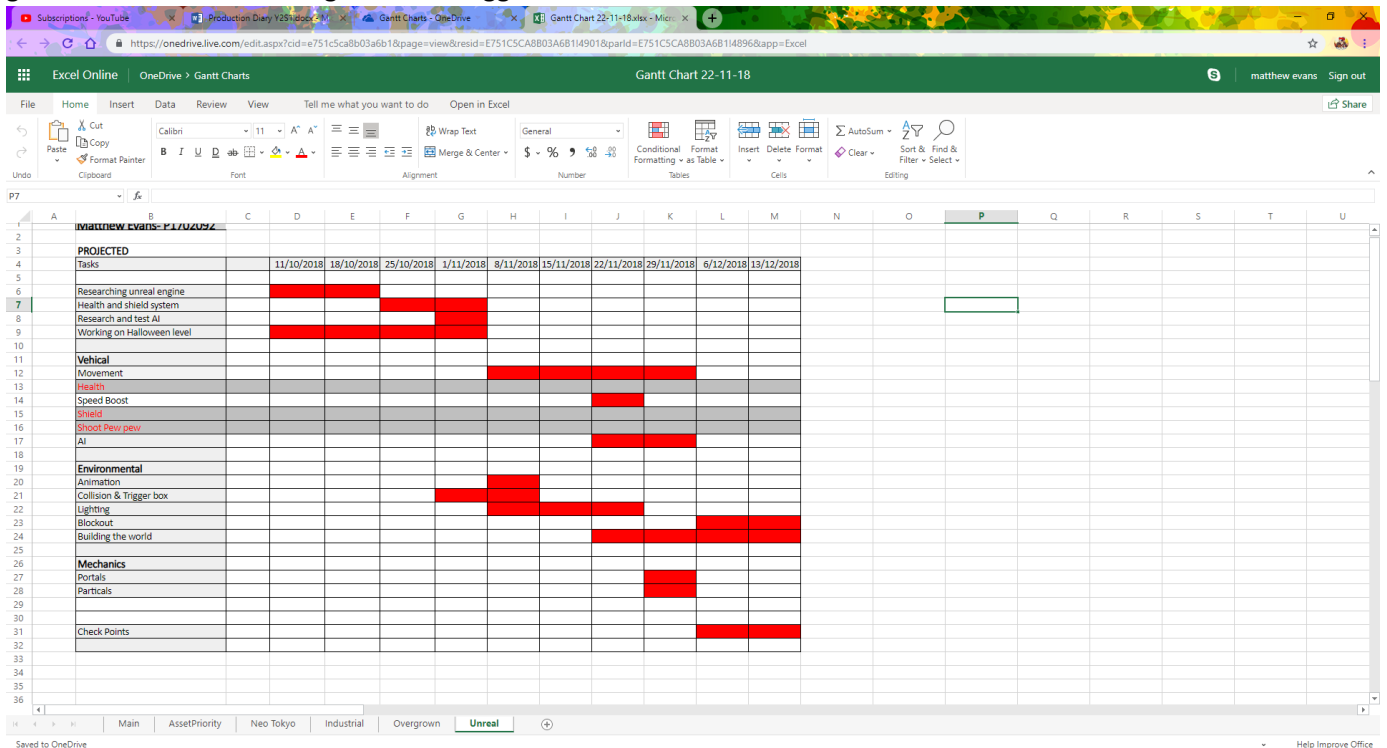
The image shows the Unity 5.6.0f3 interface with the Shader Graph editor. The main window displays a material graph for 'MagneticSurface'. The graph includes nodes for 'Poly Segments', 'Texture Sample', 'Multiply', 'If', and 'Lerp'. The left sidebar shows the 'MagneticSurface' material selected in the Hierarchy and Inspector. The right sidebar shows the 'Palette' with various shader categories and a list of materials. The bottom status bar displays performance statistics: 121 instructions, 138 instructions, 195 instructions, 36 instructions, 6/16 texture samplers, 5/10/0/0 texture lookups, and 2/4 scalars (1/4 vectors) for texture coordinates.



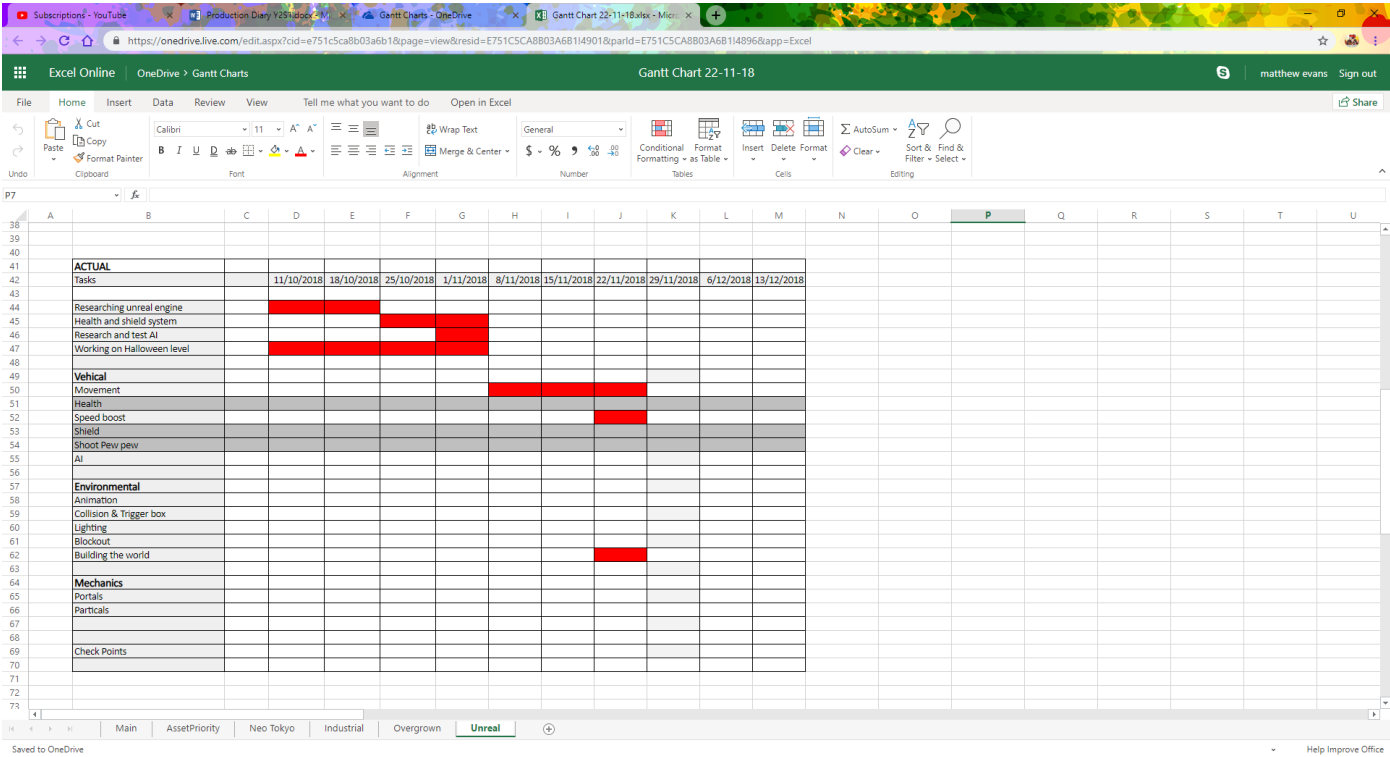
This is what the track then looked like once the texture had been altered.



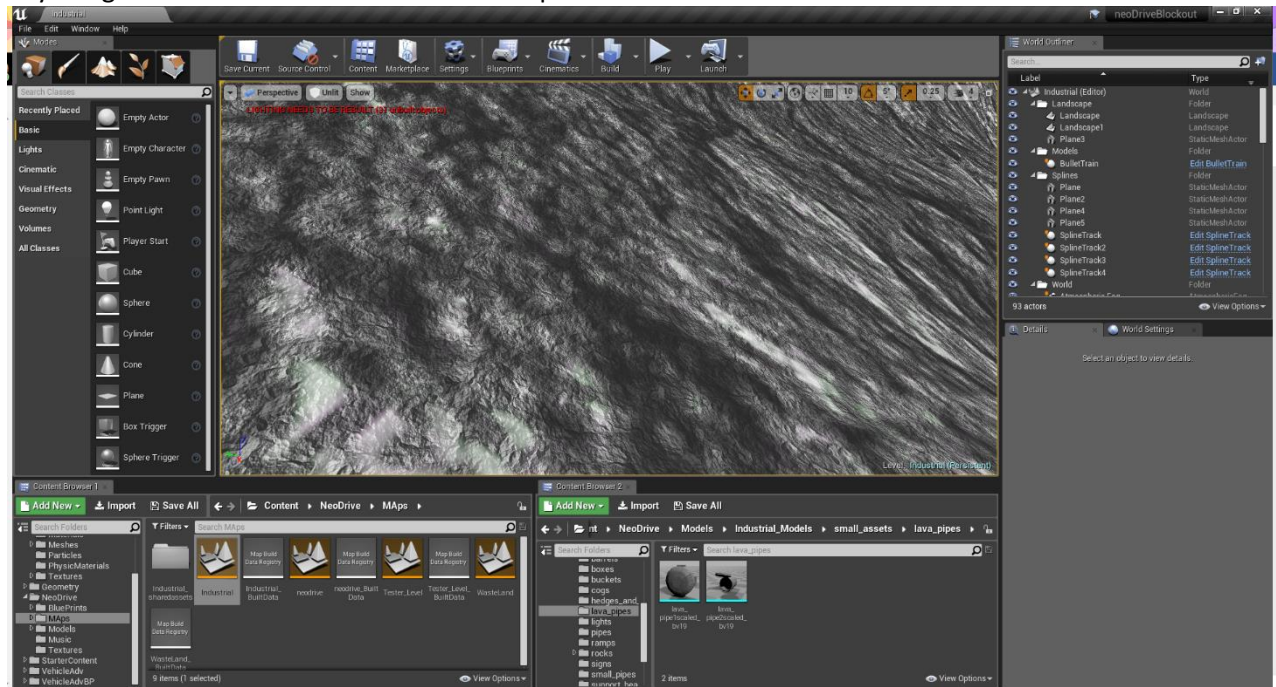
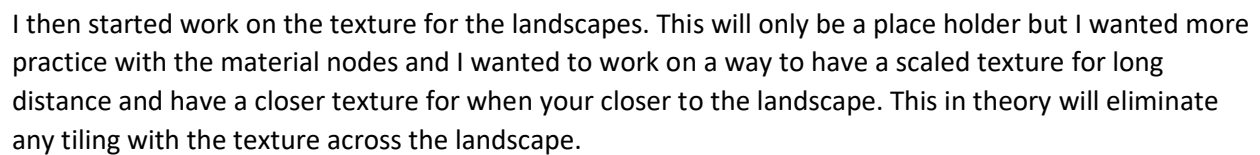
I worked on my Gantt chart again to move things around and minus things off. I spoke with the rest of the unreal team and we decided to remove the health, shield and damage off the project because we would not fit it in within the time scale. We might add this further on in development but for now, the game will be a time-based game with trigger events.



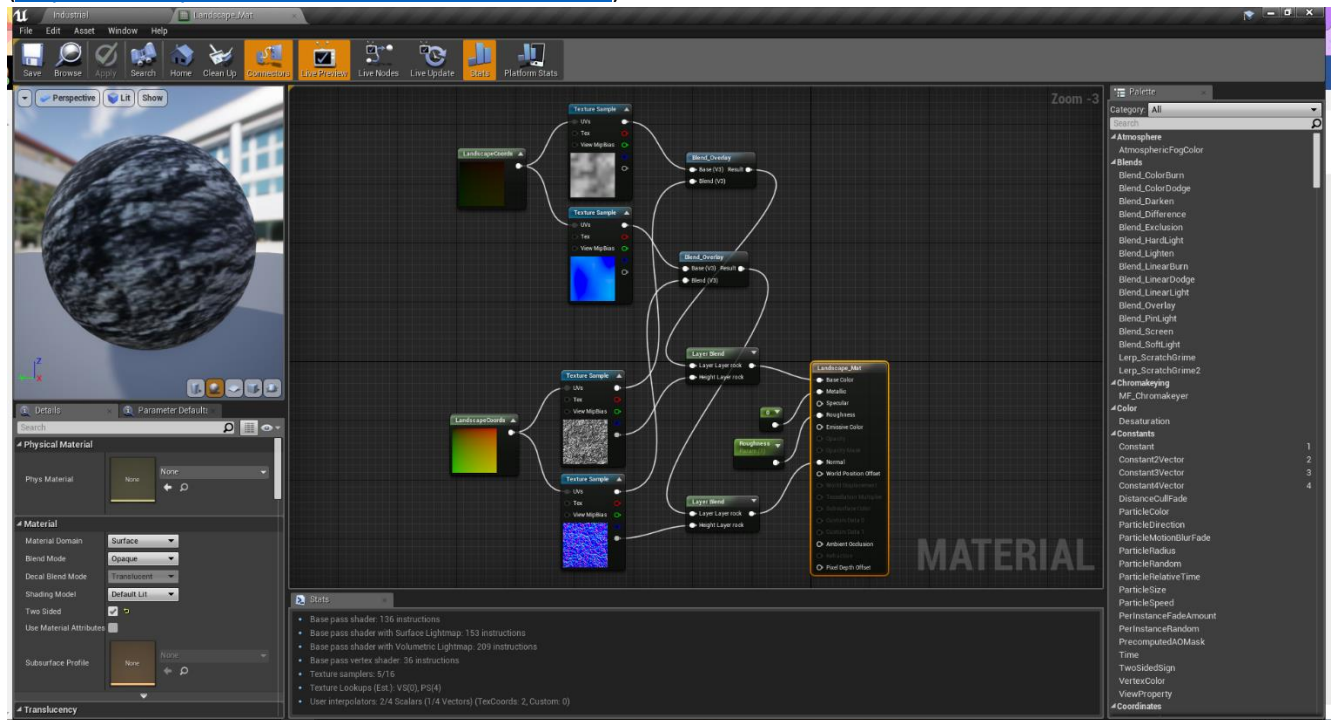
I updated my Gantt chart with all of the tasks that I have completed this week.



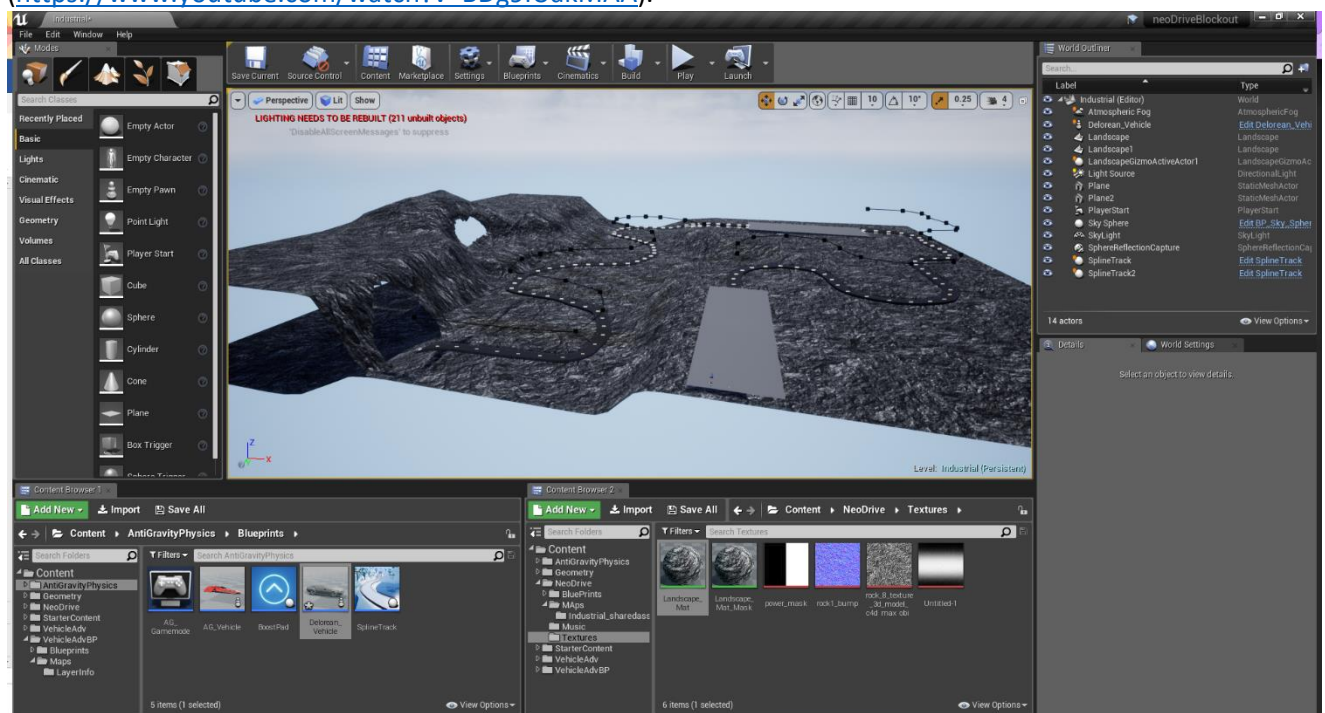
I started working on the block out for the industrial level. I sued the design given to me by the level designer and Started to lay out the track splines in the designed places.



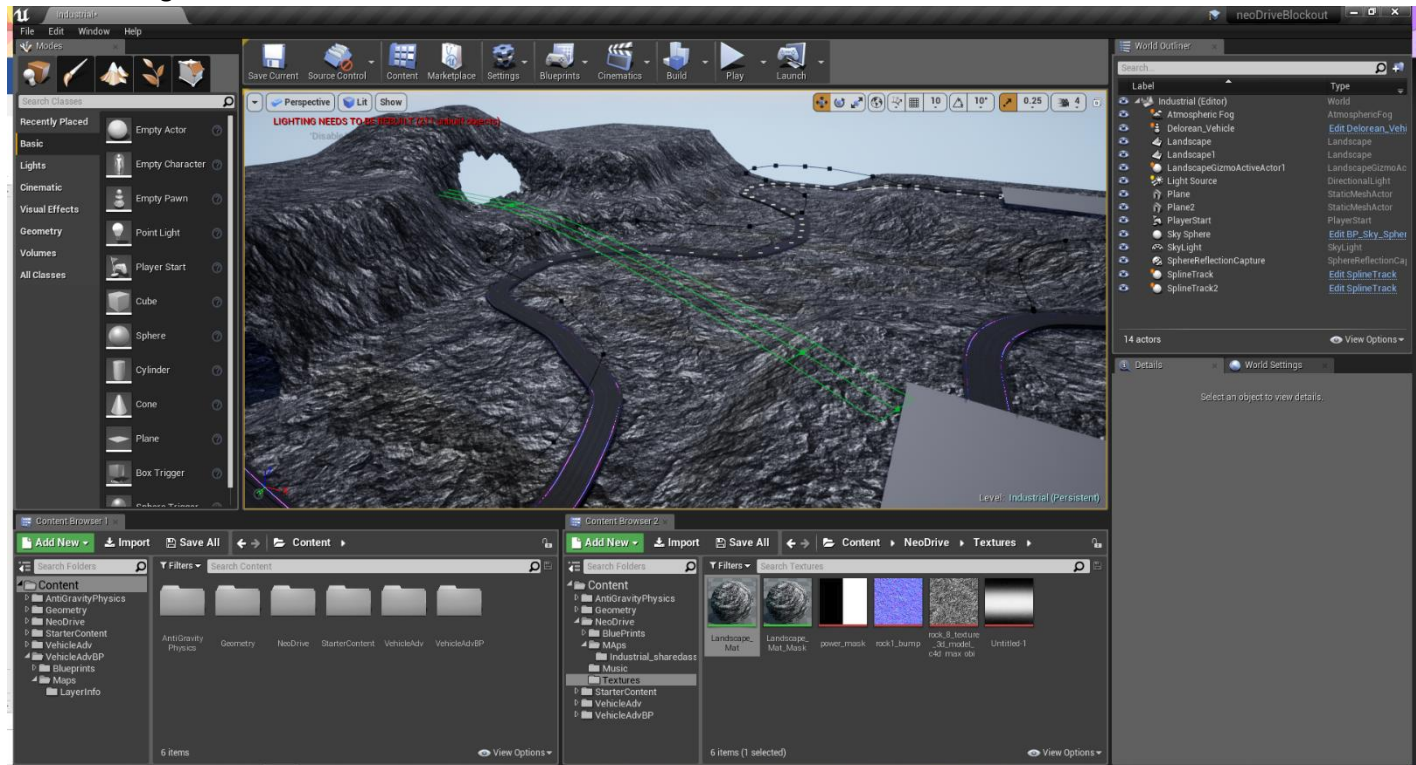
This is the material blueprint for the Landscape texture, I scaled up one of the textures and its normal and then created an overlay blending mode. This allowed the textures to be seen though each other. One would show up at distance and the other when close up. I used this tutorial to guide me (<https://www.youtube.com/watch?v=I4wTakirCVo>)



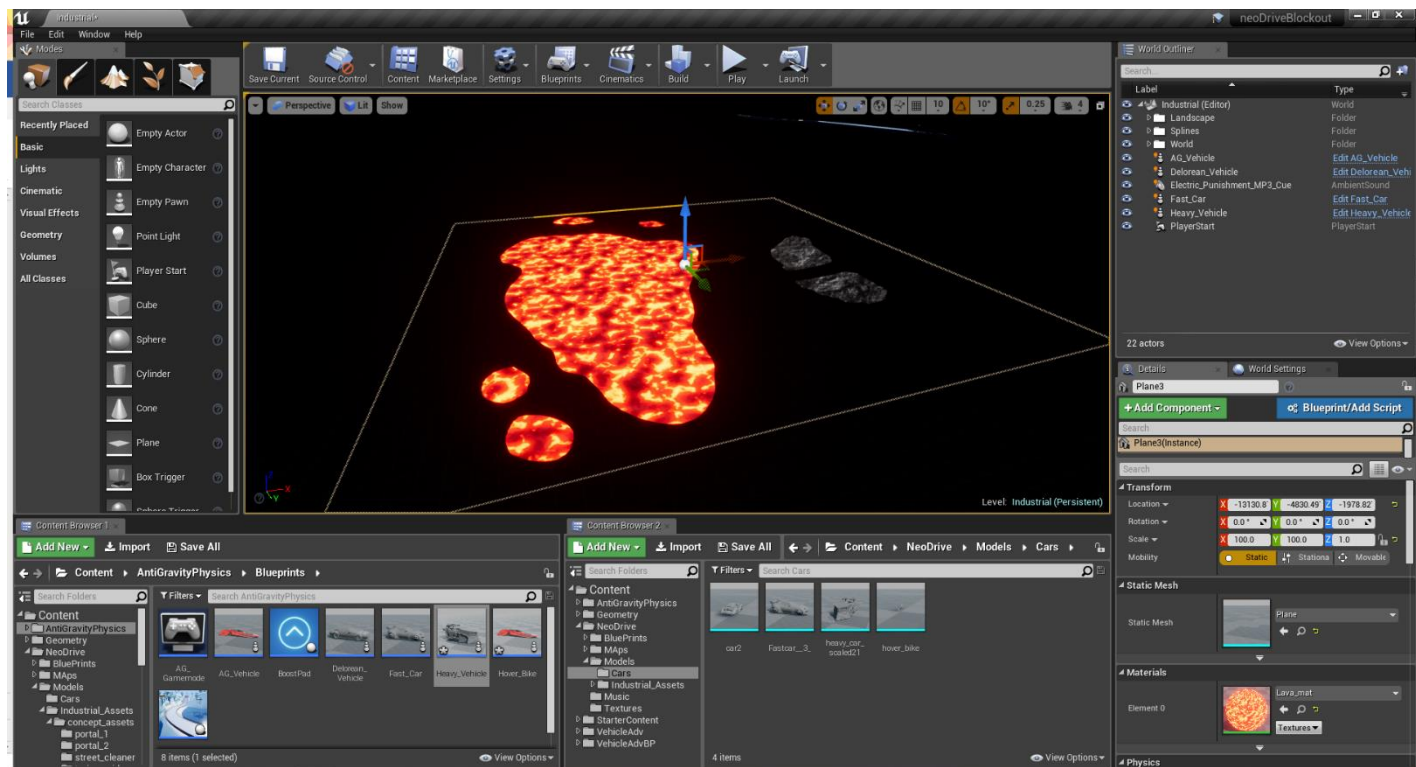
When creating the cave, I watched two YouTube videos, one to stop the scaling of the landscape texture (<https://www.youtube.com/watch?v=I4wTakirCVo>), and another to set up the visibility of the landscape (<https://www.youtube.com/watch?v=BDg9IUakMAA>).



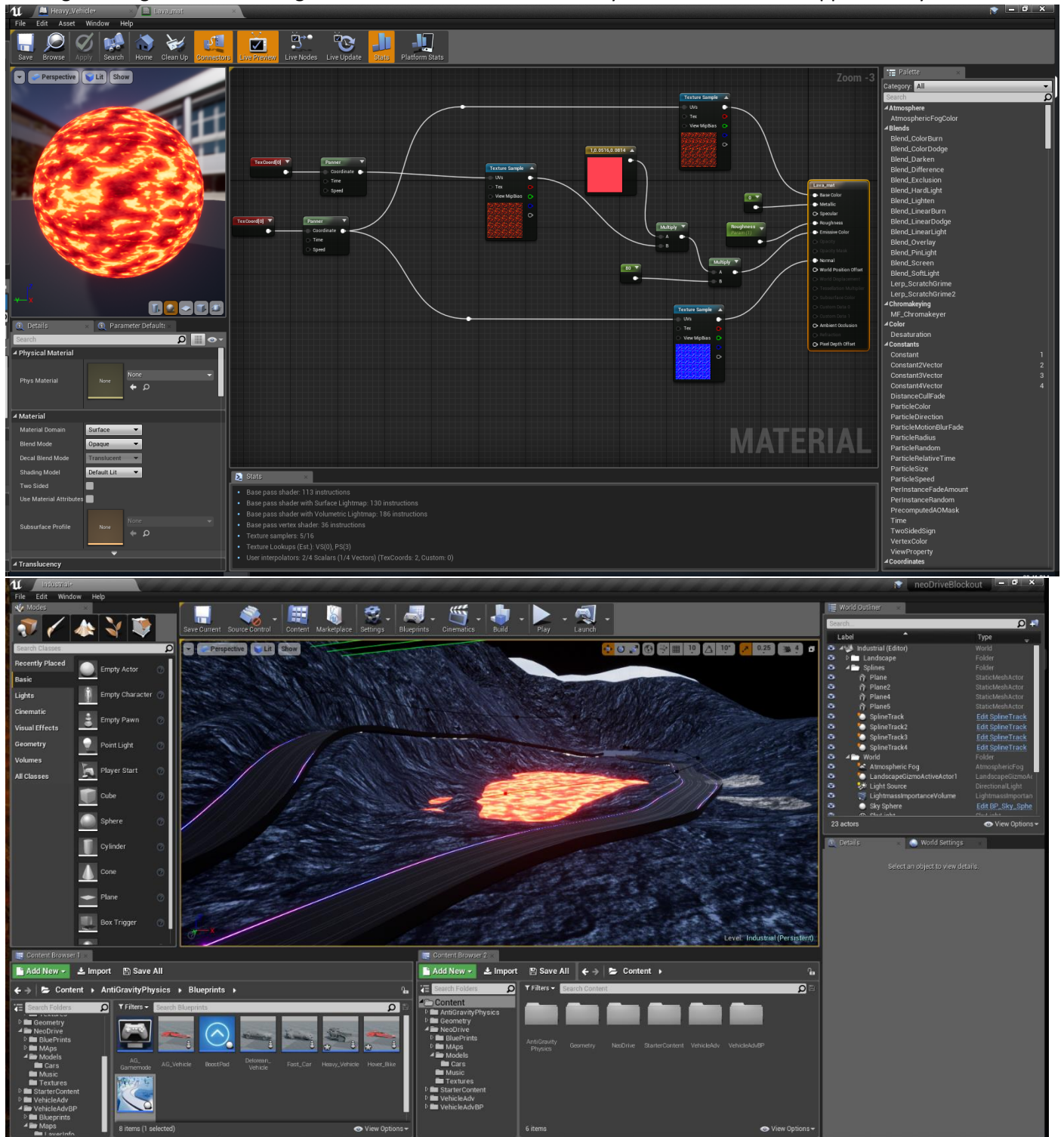
I also added in the spline for the train track that runs through the cave. I didn't add the mesh yet as it was still being modelled.



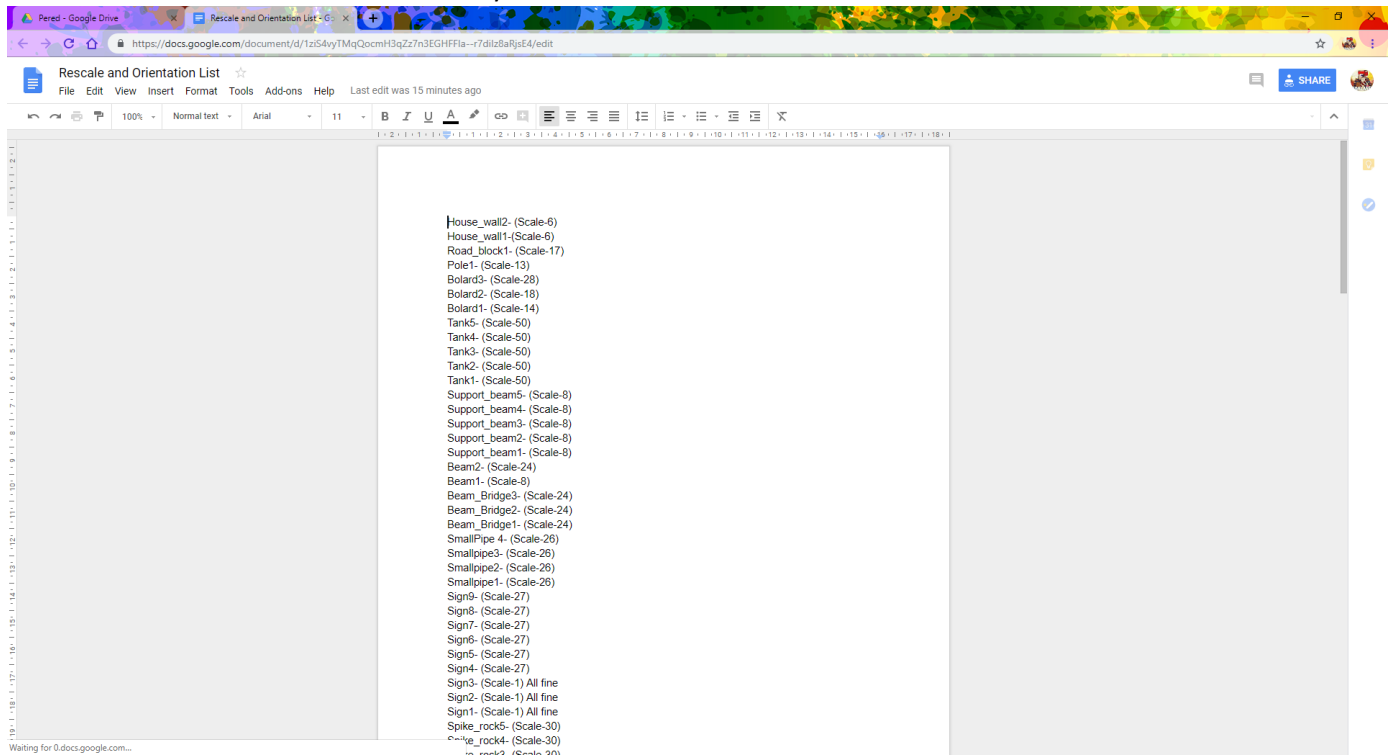
I then created the lava lake. To do this I placed a plane in the world and set up a moving lava texture. The texture also had an emissive on it so that it effected the world.



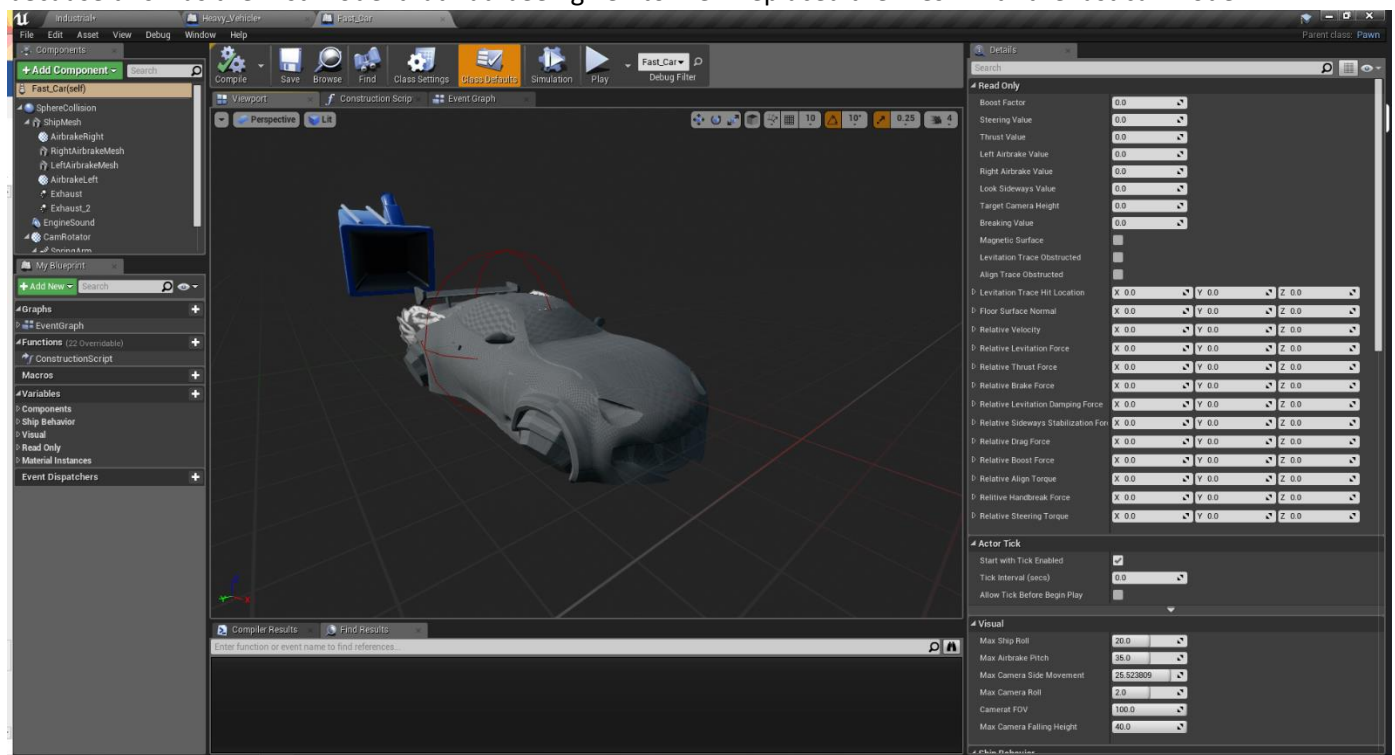
I added a panner onto the textures uv's so make the lava move across the plane, this gives the illusion of moving lava in game. I also changed the direction of the emissive layer so it moves in the opposite way.



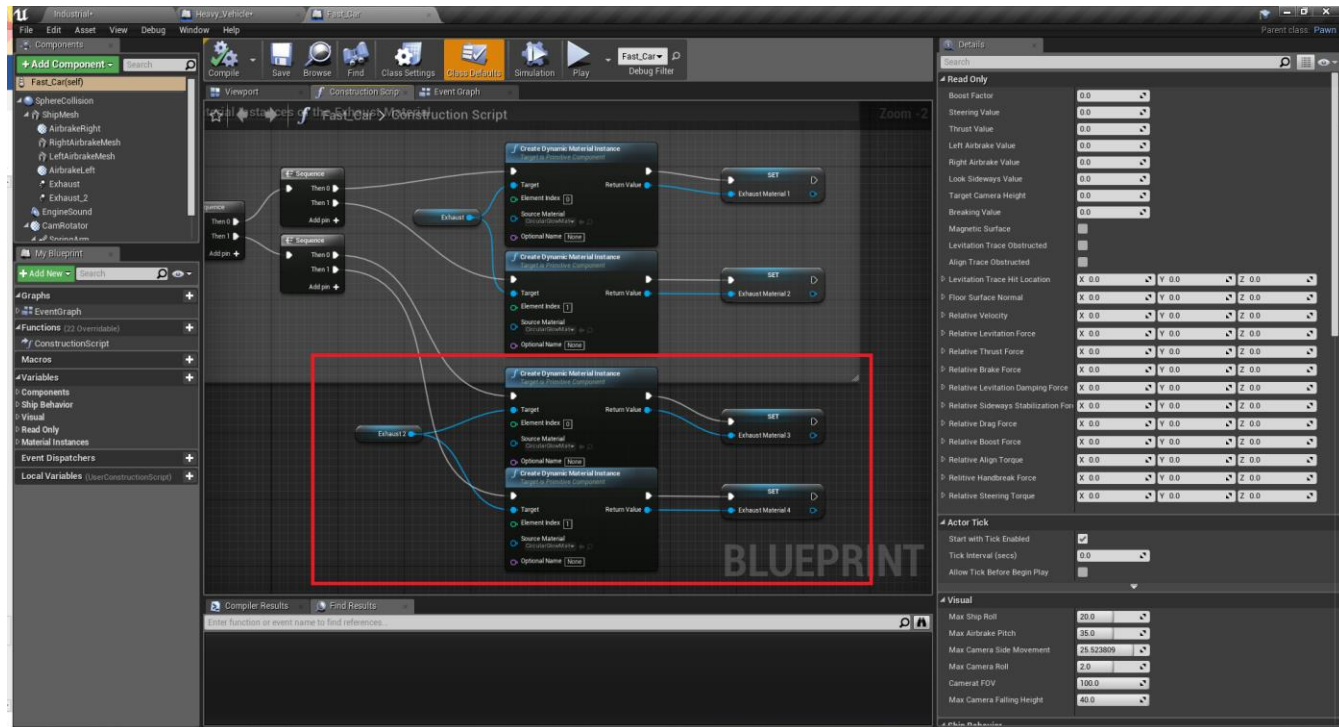
After this I Imported all of the models given to me by the modeler and Made a list of what scales each model had to be rescaled to because they were all unscaled.



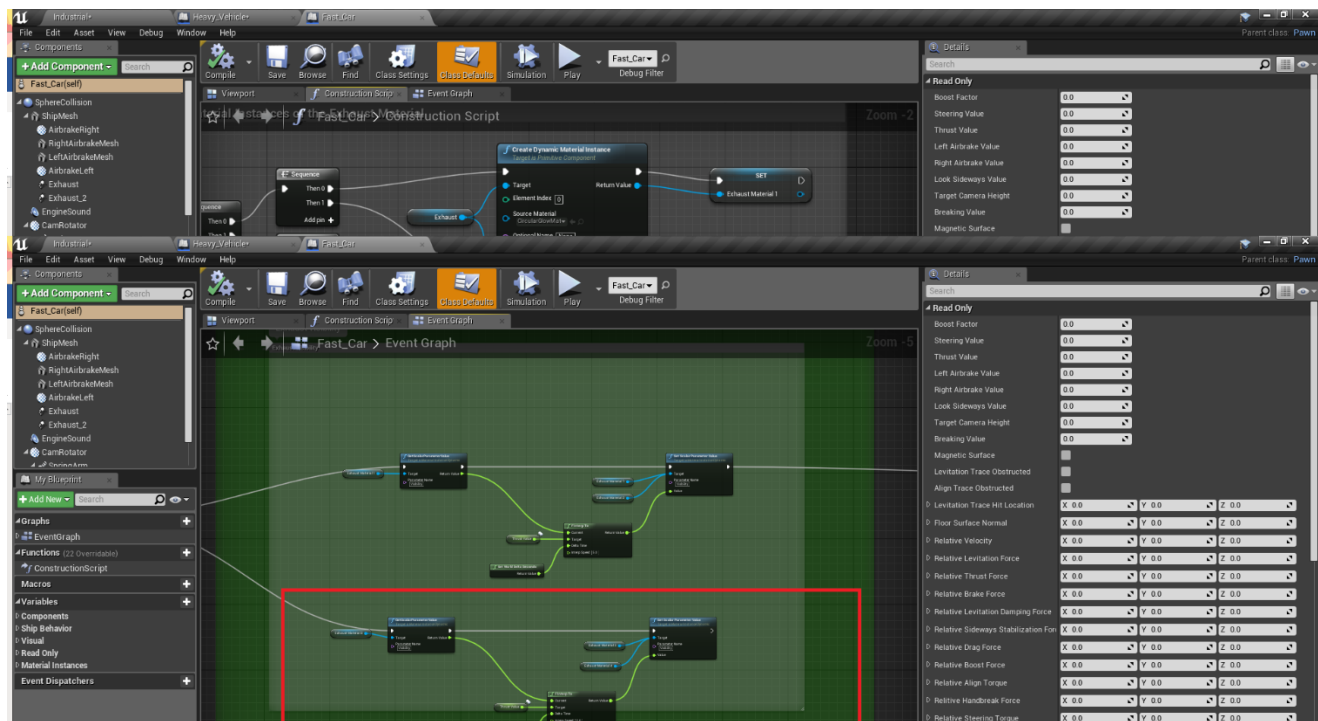
After this I then started working on the different vehicle blueprints. I started with the fast vehicle because this was the first model that had been given to me. I replaced the mesh with the fast car model.



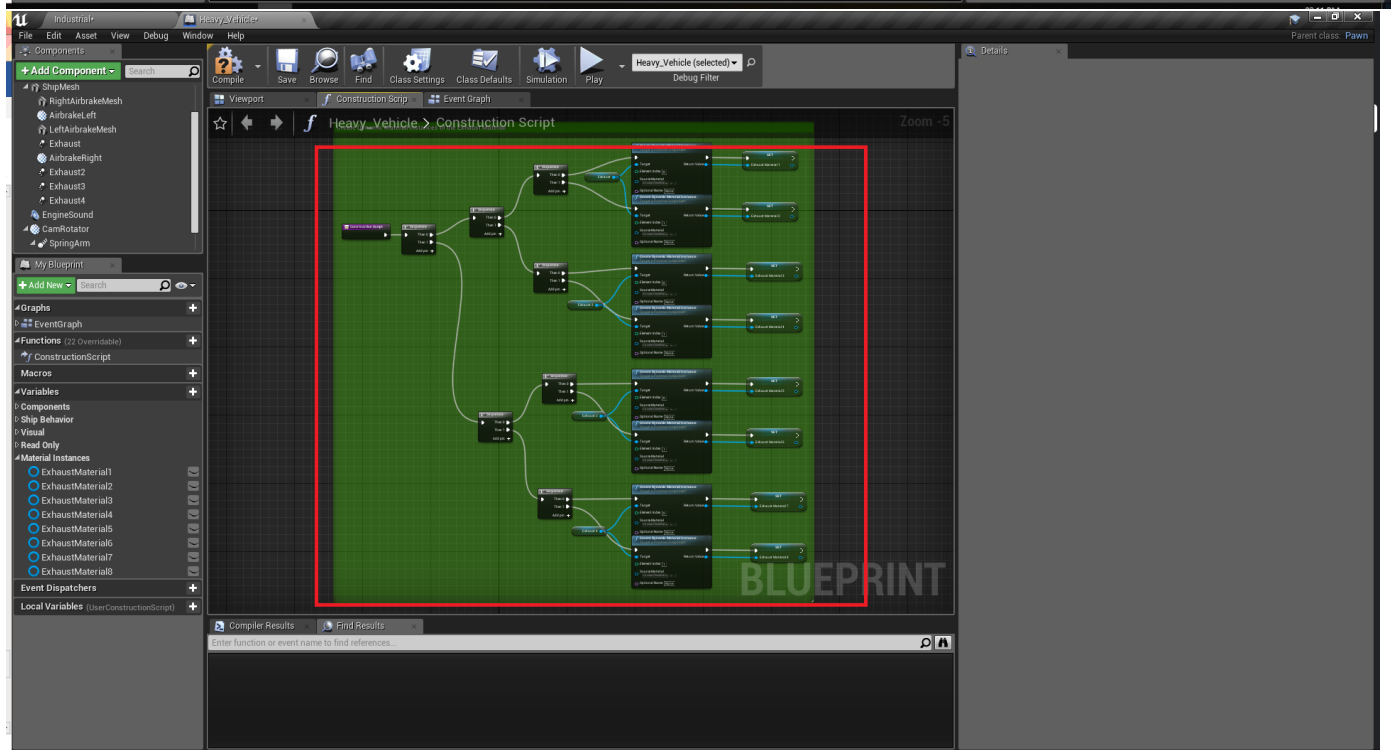
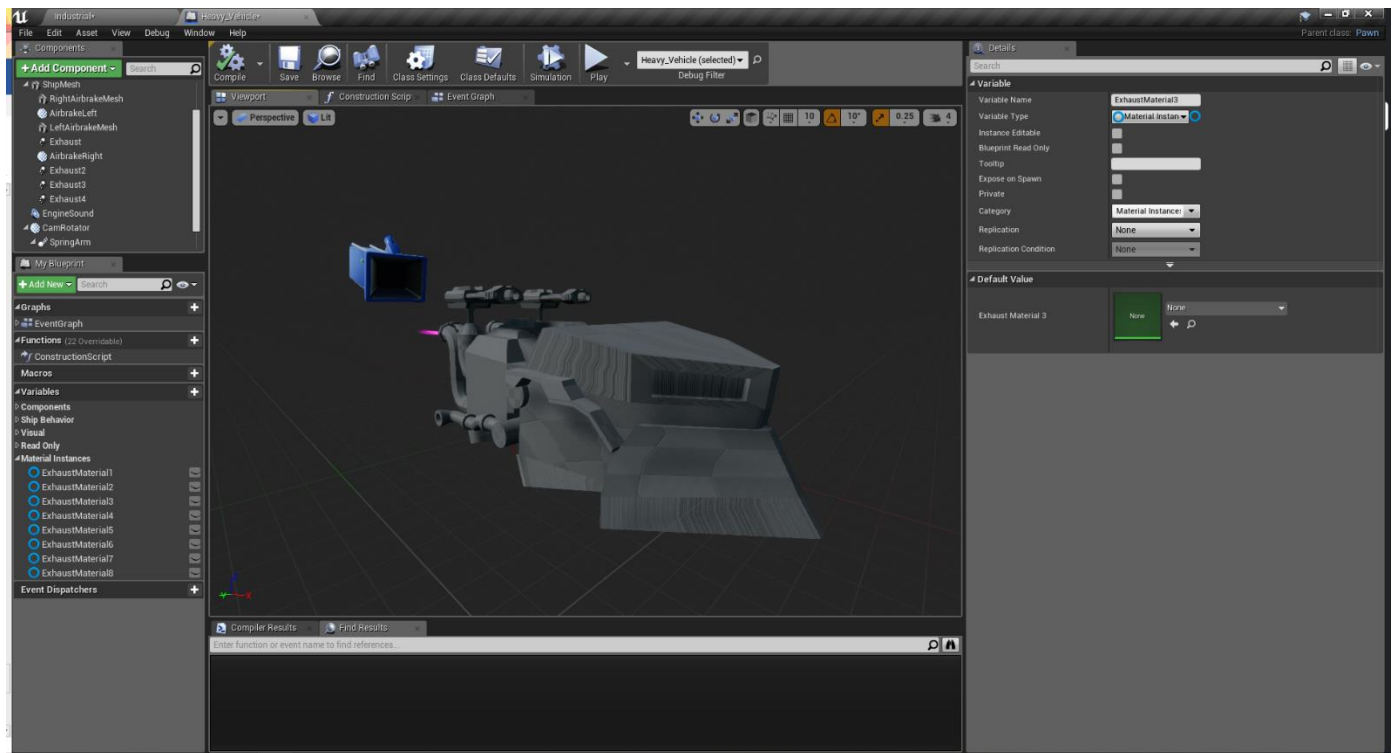
I then had to alter the construction script to add the second exhaust in. To do this I simply created two more material instances and a new variable.

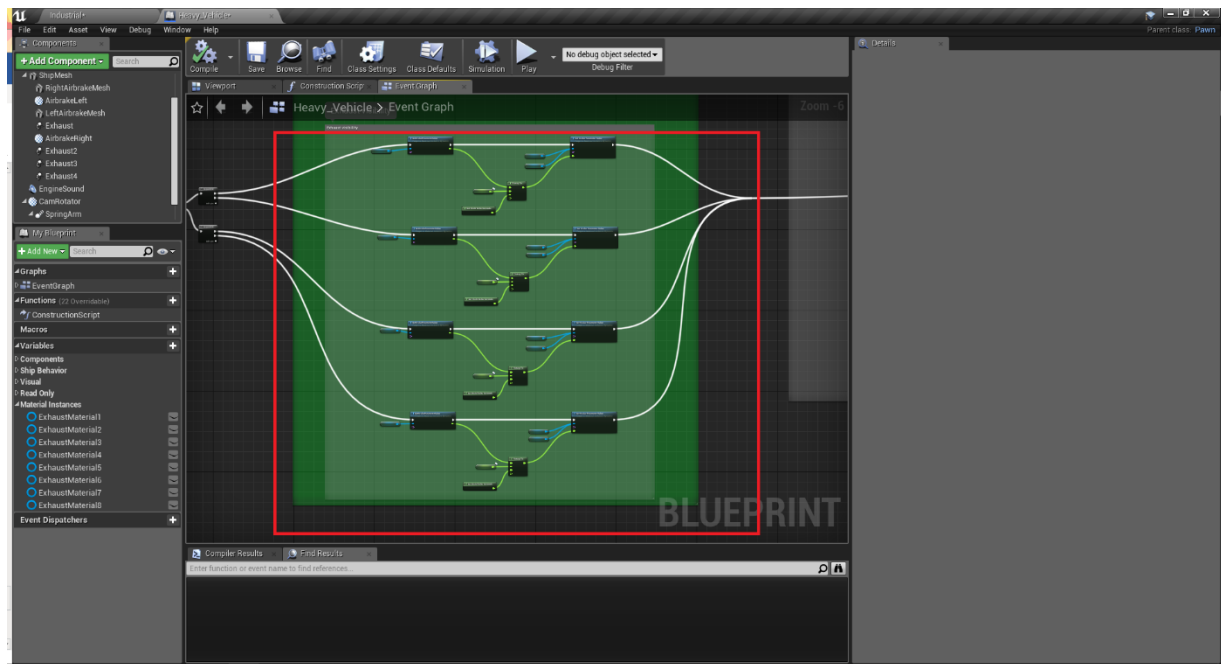


To make the exhaust become dynamic with the movement I also had to edit the event graph nodes. I added in the new exhaust variable and material instances.

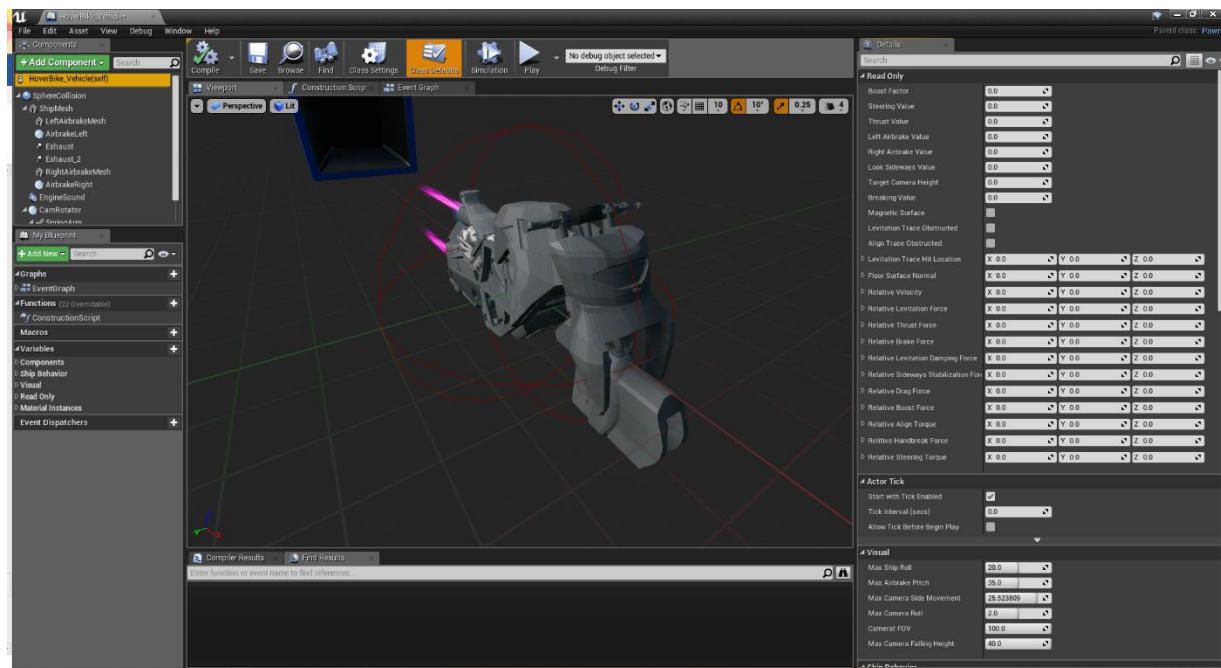


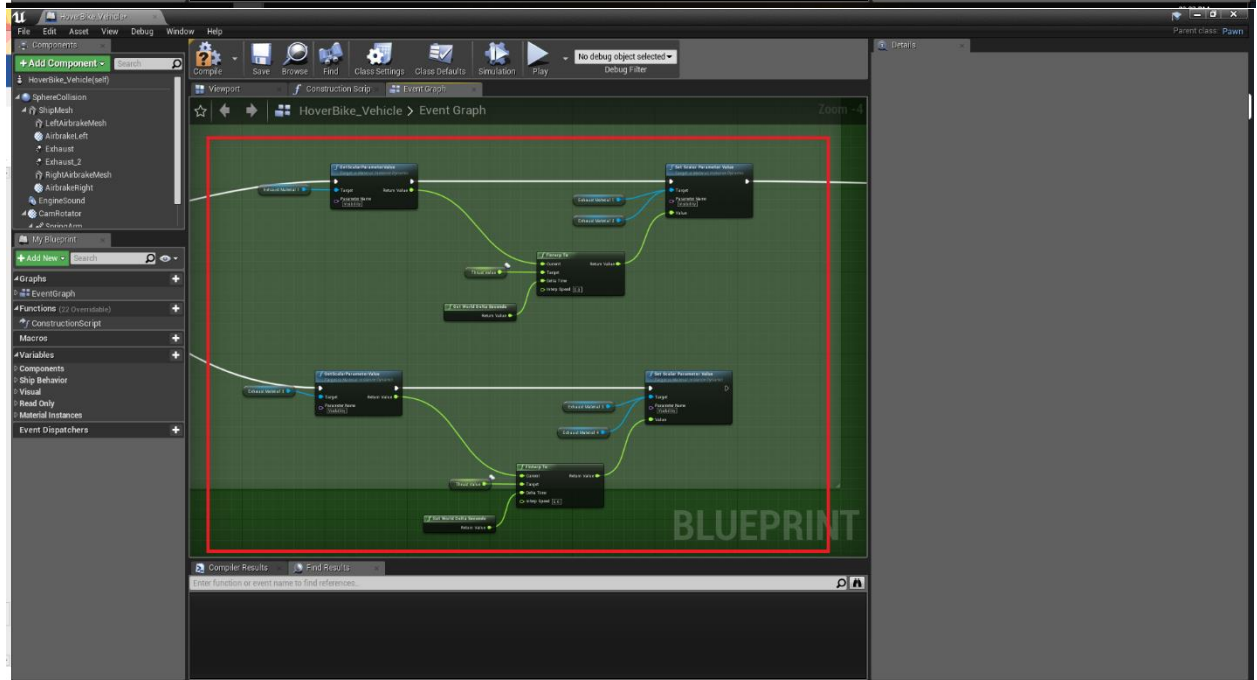
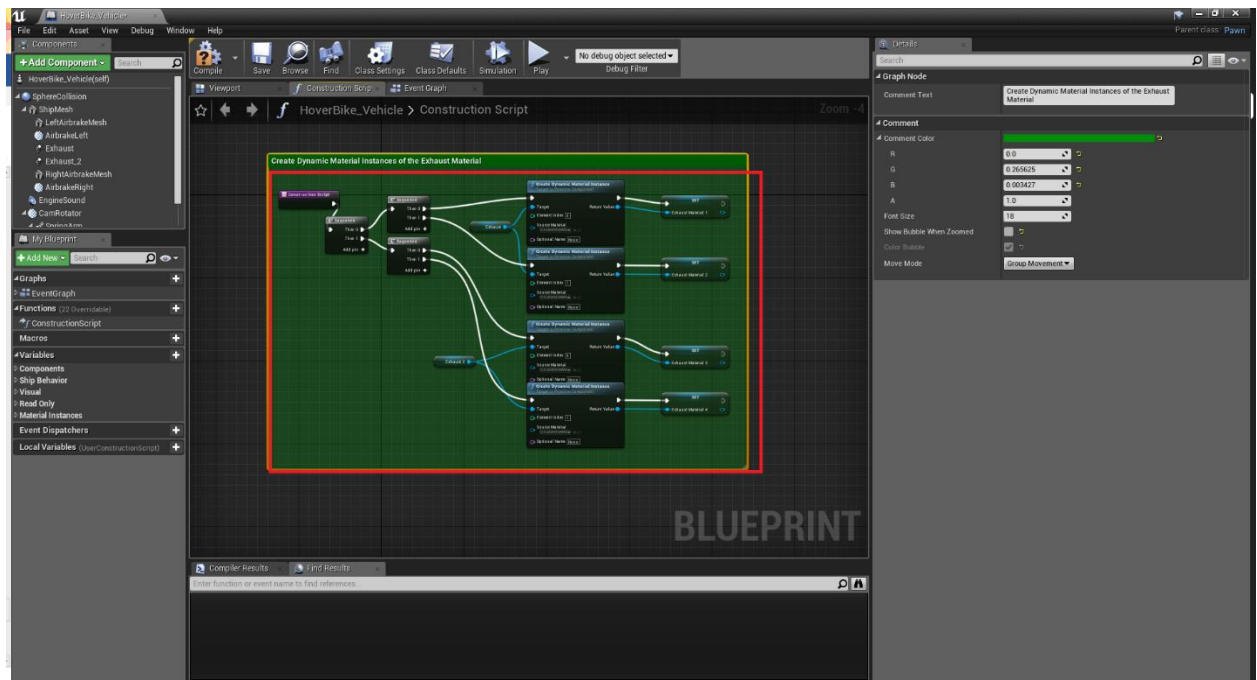
I then started working on the heavy vehicle because this was the next model given to me. For this model I had to make three new exhausts because there were four in total.



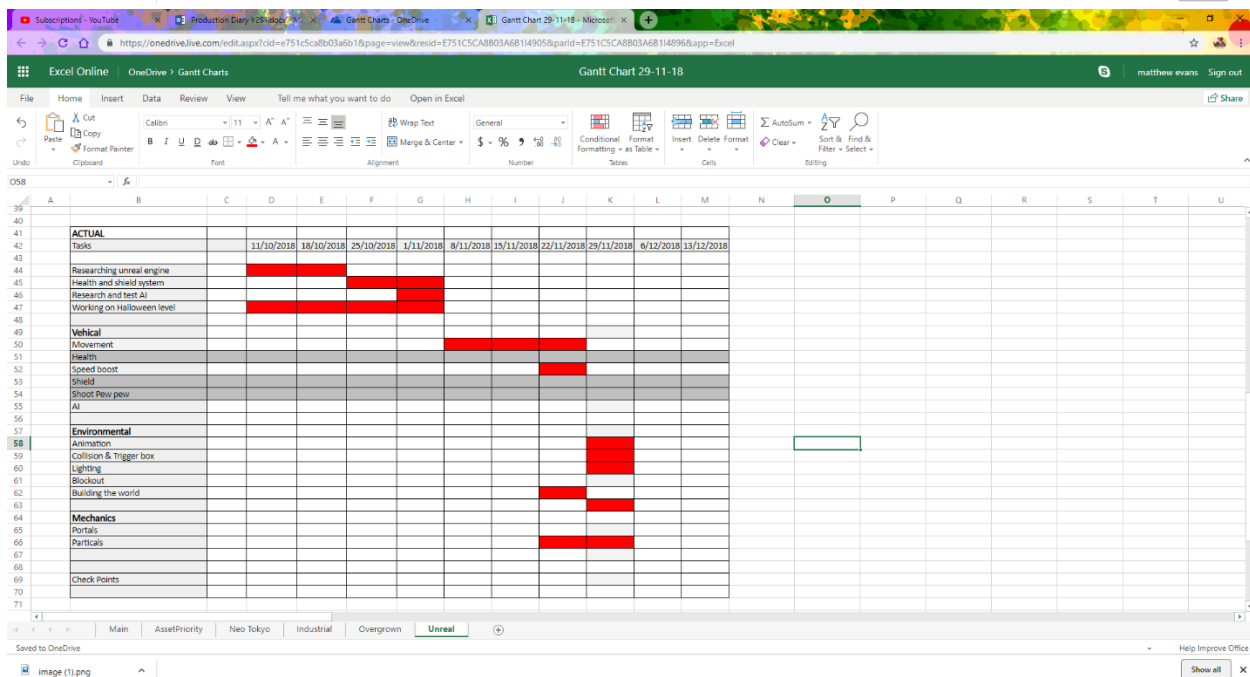
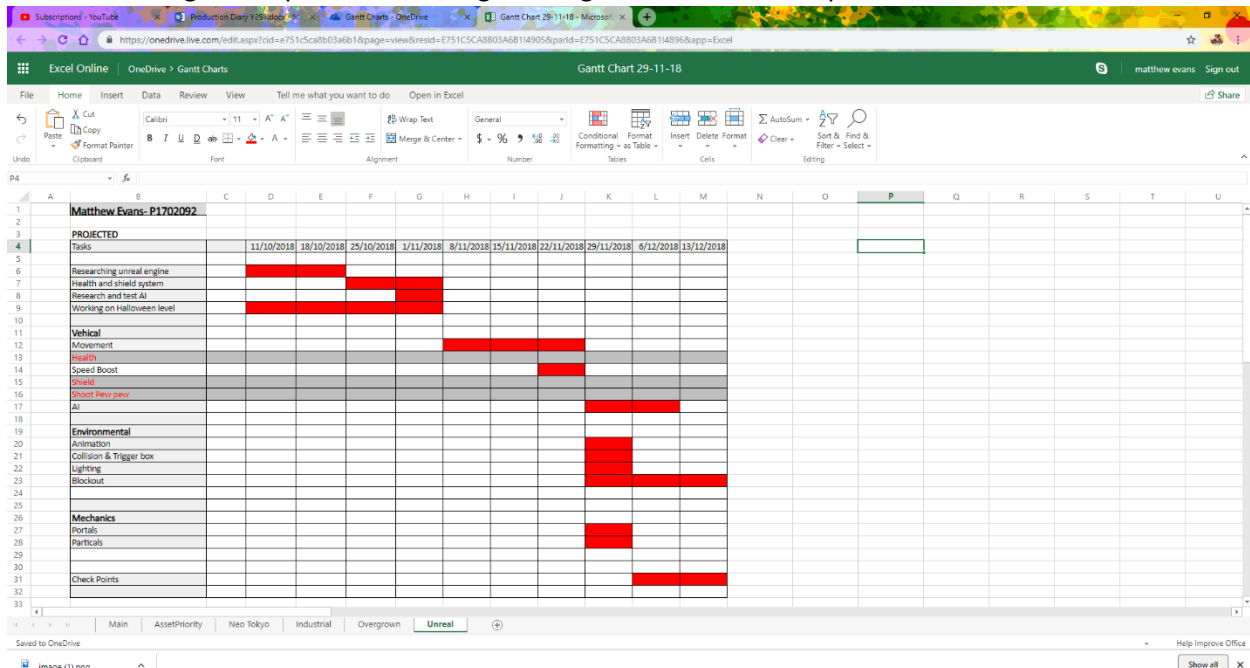


Next the Hover bike. I did the exact same for the other models.



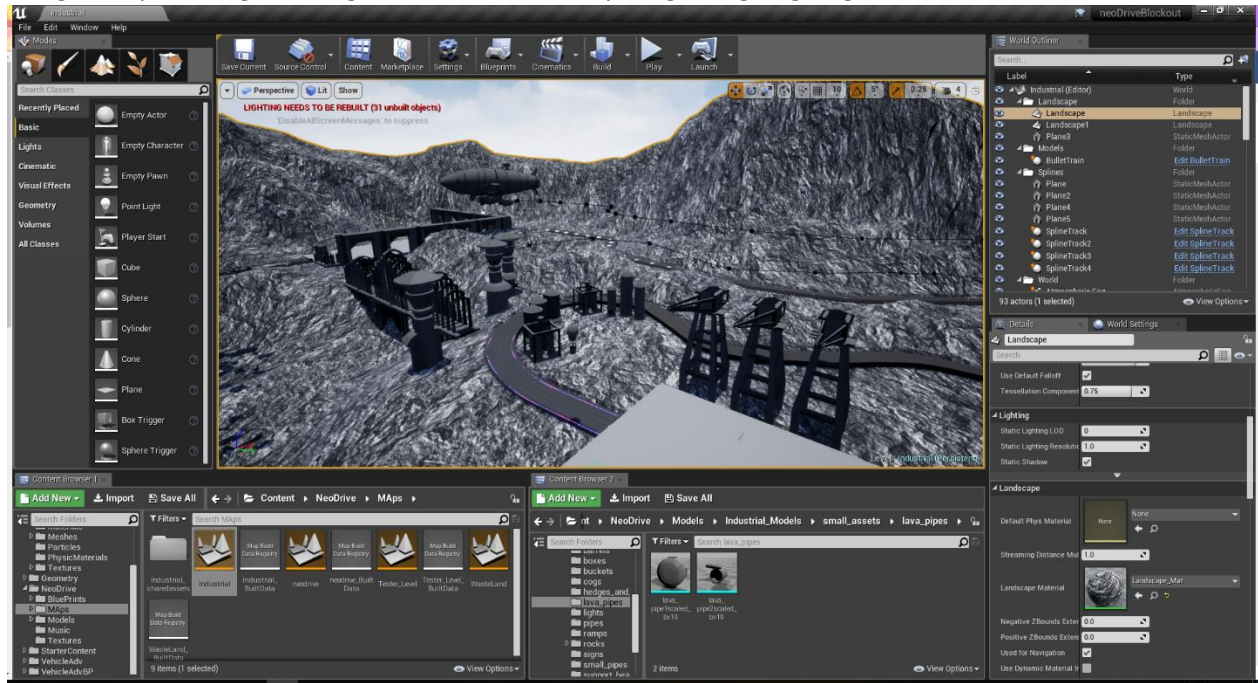


I updated my Gantt chart, I removed “Building the world” as it was the same thing as the “block out”. I also moved the “animation, collision/trigger box and lighting” to this week as I have only now gotten around to doing it as I spend far too long working on the vehicle blueprints.



Week 10: 3rd to 6th Dec

I then continued to block out the world with the assets given to me by the modeler. I used the level design template to get a rough idea of where everything was going to go.



To conclude I have learnt a lot with the blueprints within unreal and how to use them to manipulate assets in game. I now have a deeper understanding on the physics within engine and understand to a certain degree how to control the physics to manipulate in game characters and assets. I have also developed my skills with texturing and using the material blueprints, by creating landscape materials with paintable layers, having scaling textures for the landscape to remove tiling and getting more detail up close and creating moving textures with a panner. I have worked closely with other members of the development team and have given each person Feedback on their work and how they can improve and become more efficient. I have also spoken with the modeler and we have discussed scaling for the future.

Bibliography

YouTube. (2018). Space Dust Racing UE4 Arcade Vehicle Physics Tour. [online] Available at: <https://www.youtube.com/watch?v=LG1CtIFRmpU> [Accessed 12 Nov. 2018].

YouTube. (2018). Space Dust Racing UE4 Arcade Vehicle Physics Tour. [online] Available at: <https://www.youtube.com/watch?v=LG1CtIFRmpU> [Accessed 12 Nov. 2018].

YouTube. (2018). [Unreal Engine 4.7+] Hover Vehicle Blueprint Tutorial. [online] Available at: <https://www.youtube.com/watch?v=cPVaDndT7tY> [Accessed 19 Nov. 2018].

YouTube. (2018). How to make a cave in UE4 (Unreal Engine 4). [online] Available at: <https://www.youtube.com/watch?v=BDg9IUakMAA> [Accessed 26 Dec. 2018].

YouTube. (2018). Unreal Engine 4 - Getting rid of tiling in terrains / landscapes. [online] Available at: <https://www.youtube.com/watch?v=l4wTakirCVo> [Accessed 27 Dec. 2018].