

Tim's Escape from Dinosauria - Post Mortem

Andreas Nordbø - Noroff Stavanger - 2017



The Game

Play as a dinosaur in this Third Person Puzzle-action adventure

Tim builds a Time Machine and goes back to the age of dinosaurs, DINOSAURIA!

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Background

This game development project was developed alone as a solo project by me: Andreas Nordbø. I have had background making games before I started studying on Noroff but I had only made games in 2D, mostly small mobile games. I do have some previous experience in programming using languages like Objective C (Apple iOS games), C++ (various stuff) and C# (Unity). Last year I studied 3D Design and Animation on Noroff Stavanger as a classroom student, here I built upon my previous experience designing and animating stuff in 3D.

Tooling

The modeling, unwrapping and 3D animation software I have most experience with and enjoy using the most is Autodesk Maya. I also like to illustrate stuff (2d) in Adobe Illustrator. I have an eye for color and cartoonish/stylized styled games.

I have loads of experience using Adobe Photoshop, which also was my go-to tool for setting up HUD, making textures and exporting 2d graphics into UE4.

I've never created anything in Unreal Engine before I started my 3D Game Design studies, so UE4 was new to me. Because of my previous programming experience, the blueprint system was not too hard to chew into. The version of Unreal Engine I used was 4.15.1, as of writing there was a newer version (4.16) released by Epic, with many cool and interesting features like volumetric fog, I decided to not upgrade my project to this version in case it would break anything. I found that Unreal Engine was very artist friendly, and easy to learn through the blueprint system. I think UE4 is a good tool as either a way to create a short prototype or to publish a large AAA game, It's very expandable. One of my favorite thing about UE4 is the simplicity of exporting to almost any platform. It did not take too much of an effort to make my game "ready for VR".

Location

I completed this game development project (Project Exam - PRE) under 12 weeks as a classroom student on Noroff Stavanger. Some of the work was done in classroom and some from home. I had close follow-up from teacher which gave me feedback and came with ways to solve issues that appeared. I also used him to ask questions regarding the assignment, software and techniques.



Brainstorming

I started this project by making 3 short game idea pitches.

The first Idea pitch was a game called “Dognesia”, this was planned to be a dog VR horror simulator where a dog wakes up in the middle of a forest having lost his memory. The player was supposed to be using a flashlight in a top-down perspective to guide the dog home, avoiding enemies using stealth mechanics. The twist of this game Idea was like my Dinosauria pitch where the dog wakes up inside his doghouse realizing that he had been dreaming the whole time. I think this could’ve been a cool game, but decided not to further develop it since I found my Dinosauria pitch more interesting.

My second game pitch was a game called “Twisted Mindsplit”. This was supposed to be a weird little puzzle game with focus on multiplayer with a stylized dark and twisted art style. The thing that made this game “special” was that players could each control a half of a brain where they each had their own abilities like pyro kinesis and tele kinesis, they were supposed to work together to solve puzzles in a 2.5D platformer layout. I was not too happy about this idea so it was easily scratched when it came to deciding between the three pitches.

At last, I ended up with the pitch for “Tim’s Escape from Dinosauria” which was my final choice for this assignment. At first, it was codenamed just “Dinosauria” which is also a shorter way of announcing the name of the game.

These 3 pitches should be inside the Pre-Prod folder for this project.

After deciding which pitch I wanted to work with I made a simple illustration of a kid dressed up like a green dinosaur. I knew at that point that this was my game!



^This was the original illustration for the main character!

Process

When the pitch decision was set in stone, I made a game design document, this became the fundament of project - Dinosauria. The development process was split into 3 parts: Alpha, Beta and Gold (not counting pre-production), these are used as industry standards. The Alpha delivery was supposed to be a playable prototype with the technical features and mechanics in place. The Beta phase is where I did the heavy lifting focusing on assembling the game with all gameplay elements in place, as written in the assignment text. The Gold phase is the part of the project where everything comes together and becomes finalized as a complete product. Gold phase also means if some features were not added in the previous phases they should not be added here either. Focus on the gold phase was to polish, testing, balancing and enhancing the product.

I started the Alpha process by adding fundamentals like the main character, his movements, physics, evolve system. I used a plugin called CustomGravityPlugin made by mhouse1247 on GitHub, link to it can be found in document delivered with gold. This plugin is written in C++ for UE4, it's very simple, all it does is to add gravity towards the spherical planet I used as core of my levels. I started by making my own custom gravity system until I found this plugin, I decided to use it since it worked quite well with my game and seemed stable and not too performance heavy. Early on during Alpha I implemented a HUD system that was later expanded upon later during the development process of my game. I also did some early testing with VR, using Oculus Rift + Touch

just to make sure it would work out well. The rest of the Alpha phase was used on blocking out levels, adding basic enemies and character functionality.

The Beta phase is where I did most of the heavy lifting, setting up everything for levels, HUDs, menus and functionality in-between.

During the Beta phase I had one week where I did almost all the assets in 3D using Maya, by using a week modeling and texturing I got some room to breathe and start “fresh” using Blueprints again.

For the Gold phase I did mostly polishing and bug fixing. In the end of the gold phase I spent some time decorating and did my final playtesting.

Before I started developing my game I made a production plan and a risk management plan (delivered with gold). This was useful in the start of the project, but as I got more ideas and overview over how my game was going to look I got further away from my production and risk management plan. However, I used a helpful website called hacknplan.com, this is like an online scrum system. Here I logged everything I did throughout the project. On Hacknplan I divided the work into the same milestones that went with the project. Each milestone is divided into four rows, Planned, In Progress, Testing, Completed. I tried to add as much as possible into each milestone before I started working on it, then at the start of each day I moved a few tasks from Planned into in progress until I finished it and moved into the Complete row, if it needed testing I put it into the testing row for testing until I moved it into complete. Every time I moved something into Complete I logged how much time it took to do that particular part. Using this system was very helpful for me. The downside was that exporting an activity log from this site got a bit too detailed, so I found it important to keep notes on a separate worklog document for which tasks were done each day.

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What Went Well

The favorite part of my game is the way story and theme bonded together making a cute little game. I'm also happy with the way music and sound effects I found helped enhance the feeling of the game and added some sense of humor.

The second favorite thing about my game is the feeling of the environments and the level design, a lot of development time went into level design.

While working on the game I got classmates as play testers, this was very enjoyable for me and also very helpful by getting feedback and seeing how people reacted and solved certain parts of the challenges of the game.

I think I ended up with gameplay that is both varied and challenging. Specially I am happy how the last boss turned out

What Didn't Go Well

I wanted to have enemies chasing the player, the best way to make this type of AI work would be utilizing Navigation meshes in Unreal Engine 4. But since I used spherical this was not a simple task, as NavMeshes "only" support to->down and does not work well with upside down and slopes which my spherical level is built with.

I could've made everything on a flat plane and make a shader in UE4 to make the plane bend around like a spherical planet.

The biggest struggle I had with this game project was the Blueprint logic binding everything together. I got stuck way too often, working too long on fixing certain bugs and so on.

A weakness of the project I think has to be that it's very short-lived, I tried to fix this by adding collectibles (like 3/3 time crystals per level and golden eggs) to add some form of replay ability.

What I could have done differently

If I were to start this project all over again today, the main thing I would do differently is not using too much time working on features that did not work. I think I would have structured and planned better early on during the project. For example, when working on enemies and NavMesh on a spherical level I could have done research that told me

that this is not possible in UE4 before spending hours trying to fix something that did not work in the first place. Another thing would be to focus on one specific thing at a time, instead of doing a little of this and a little of that, I ended up with a lot of “loose threads” during development. Regarding my Blueprints, a huge improvement here would be to keep my nodes cleaner, utilizing more reroute nodes for easy readability. In my project my code looks a bit like spaghetti chaos, it does not affect the game in any way but it made it a bit hard to add new features or editing the project during development.

What's Next

It would be awesome to continue working on this project, I have a lot of ideas of how I could expand the game. The first thing I would work on would have to be adding new “worlds” with different themes. As-is the world with 5 levels I already have share a common theme and a common enemy. It's all themed around plant and earth like elements, this is cool in my opinion, but it would add more “oomph” and variation with different worlds and more to explore. Adding themes like ice, lava, snow, water and so on could also bring its own enemies, environmental hazards and bosses introducing different gameplay and level design challenges. It would be important to start early on cleaning/tidying up my Blueprints early on before working further on Dinosauria.

If I were to “finish” the game for publishing, my platform of choice to release the game would definitely be VR, as I'm a huge VR nerd 🕹️ So Oculus Home or Steam would be two options.

Personal Thoughts

All in all, I am happy with how the project turned out, of course there is always room for improvement. When I started the project, I had larger ambitions for Dinosauria than the final product ended up being, so I had to do some tradeoffs, resulting in less levels and variation in gameplay. It did take a lot of workhours to complete, so I think the work I put into it paid off. Since this was a solo project, implementing new features, fixing bugs and doing improvements overall took more time than if I would've worked in a small team. I ended up learning a lot of new stuff, especially using UE4 and Blueprints.

