Vertigo Games Internship Report

Internship Report 1st semester of 3rd year CMGT

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Introduction

As a CMGT student looking to specialise in game design and with no experience in VR gaming or development, I was not expecting to end up doing an internship in quality assurance at a VR game development studio during the 1st semester of my 3rd year. While it was definitely not expected, when the opportunity was presented I quickly saw the potential in this learning experience.

For this internship I devised three learning goals to guide me during this adventure. My first goal was to get a solid understanding of the quality assurance workflow to create a diagram for future quality assurance interns to integrate more easily. My second goal involves getting involved with the game design part of the project to further my goal of becoming a game designer. Finally, I want to obtain more knowledge on the VR market since my knowledge is very limited.

This report will also detail other various facets of my internship at Vertigo Studios Amsterdam. This includes a description of my role as quality assurance intern in VR game development, my learning goals for this internship, the project I have been a part of and a reflection.

Vertigo Studios Amsterdam

Vertigo Studios Amsterdam (VSA) is a VR game development studio located in Amsterdam. The studio is part of Vertigo Games, which includes another studio in Rotterdam named Vertigo Games Rotterdam (VGR). VGR is also a VR game development studio, although there is also a publishing department which allows Vertigo Games to publish its own and other studios' games.
Vertigo Games is also a part of two major groups: PLAION and Embracer group. This has allowed the company to expand and gives it access to various benefits such as some external IPs for making games.
While both VSA and VGR are VR game development studios, they both specialise on different genres and scales. VSA as a studio, focuses on AAA scale narrative VR games meant for single players to experience a whole new story and world. The Amsterdam studio has only been acquired a couple years ago by Vertigo Games which is why they are currently still working on their first project of that scale since being part of Vertigo Games. VGR is generally working on multiple, smaller, projects at a time which are often more arcady. Some notable games released by Vertigo Games include Arizona Sunshine 1 & 2, After The Fall or the 7th Guest VR remake to name a few of many.

VSA's production structure

The development part of the studio is split into different teams: level team, asset team, feature team, core dev team, character & animation team, audio team, producers and QA team.
The level team is in charge of putting together the level layout, environment and features in Unreal Engine. The team therefore consists of a variety of disciplines including environment artists, level designers and a few programmers.

The asset team is made of artists who create the assets for the environment artists to dress the levels.

The feature team is in charge of designing and coding the features of the game such as AI or weapons.

The core dev team consists of designers, artists and programmers who are more technically skilled, such as shader artists or engine programmers. They will focus more on backend work and tooling for the other teams.

The character & animation team is made up of artists who model and animate characters specifically.

The audio team is in charge of the audio throughout the game but mainly making sure the audio sounds right based on the various conditions in the game.

Producers manage the general planning of the project and each of them manages a team's planning, task assignment and task priority. This facilitates the collaboration between teams by allowing producers to have a good overview of each team.

The quality assurance (QA) team is responsible for testing the game every day and reporting on any unintended behaviour.

Each discipline within a team also has a "Lead" who is more experienced and helps guide the others in their team with their tasks as well as communicate with people outside of their team.

The teams typically work on a 3 week sprint which gives them enough time to orient themselves and complete longer tasks such as level dressing. At the end of each sprint, the studio holds a meeting where each team shows off as briefly as possible what they have been working on and what others can expect from them in the upcoming sprint.

Project Impact

Due to the NDA, this section cannot discuss any details of the project. Instead, it will give an overview of the phases of the project I was a part in and how the project is divided up. When I joined VSA in September, the project had just finished their Alpha phase which was marked with the alpha delivery to Meta and Sony. The game then was fully playable but was still in blockout for the most part. Post Alpha, the development teams focused a lot of attention on adjusting features and level layouts but the biggest change was in the dressing of all the levels. Around mid-november, the project focused on the beta delivery for Sony meaning the game had to be stable enough on Playstation VR for Sony to approve its beta status. During this phase, the development teams slowly stop adding new content and focus their attention more and more on resolving bugs and issues to avoid making the game more unstable. The QA team splits the game amongst themselves and each person plays their part of the game every day and reports any issues they can find.

While these are more general phases, the project is officially split up into multiple milestones which for the most part align with each sprint. Each milestone represents a goal that is set by the producers and is aimed to be met by their teams. There are exceptions to these milestones however. These exceptions are mainly for Alpha and Beta delivery milestones as they tend to be longer than a 3 week sprint. The goal during these milestones is to get to a stable build that can be played from start to finish by the people whom this delivery is for.

While these milestones give an overview based on time, the project is also divided into "Epics" which refers to the bigger concepts and features that the game is aiming to have. This is used to track how far these features are in development and bugs for example.

Quality Assurance at VSA

The QA team at VSA is one of the smaller teams, consisting currently of 3 full-time employees and 2 interns, but it holds the very important responsibility of testing and reporting any unintended and unexpected behaviours back to the production teams. Most teams don't have time to play the game themselves on a regular basis so the QA team takes up this responsibility and reports their findings to the relevant member of the production team. Since the production teams are busy adding, adjusting and removing things everyday, there is always bound to be something that breaks.
To inform the teams of these unintended behaviours (bugs), QA reports them as bugs through the project management software Jira, which the studio uses as their main way of tracking tasks, milestone goals, bugs and more.

Reporting a bug productively requires a few important steps to ensure that the person who is meant to fix the bug is correctly made aware of the context of the bug and has all the information necessary to fix it.
Bugs can come in a variety of forms and can come from all teams. For example, Assets can have incorrect lighting or textures, a level can be blocked due to an invisible collider preventing the player from passing through or a level may not load properly to name a few. Recognising bugs requires a good understanding of games and how they work since bugs can come in literally any shape and form.

The first step in the process is to find the bugs in the latest build of the game. The studio uses an automation service called Jenkins to automatically build the game for all necessary platforms every night with all the new changes from the day before. As QA, we always download the latest build every morning to test the game with the most recent changes. The platform we decide to test on that day depends on a variety of factors such as upcoming milestone deliveries for a particular platform such as Meta Quest or Playstation VR, or the playable state of the game on a given platform.

Once the build has been installed, the game is launched. The content that is played depends on requests from other teams or upcoming milestone deliveries which require the game to be played entirely on one platform every day. It is important to investigate features and parts of the level that may seem less obvious. The gameplay part of the process can take up to half of the working day and all of it is recorded from start to finish to be investigated later. After the gameplay, the recordings are rewatched and short video clips are trimmed to use as visual showcases of the bugs in Jira. These clips need to be clear and as short as possible so that anyone can understand the issue just by looking at the clip.

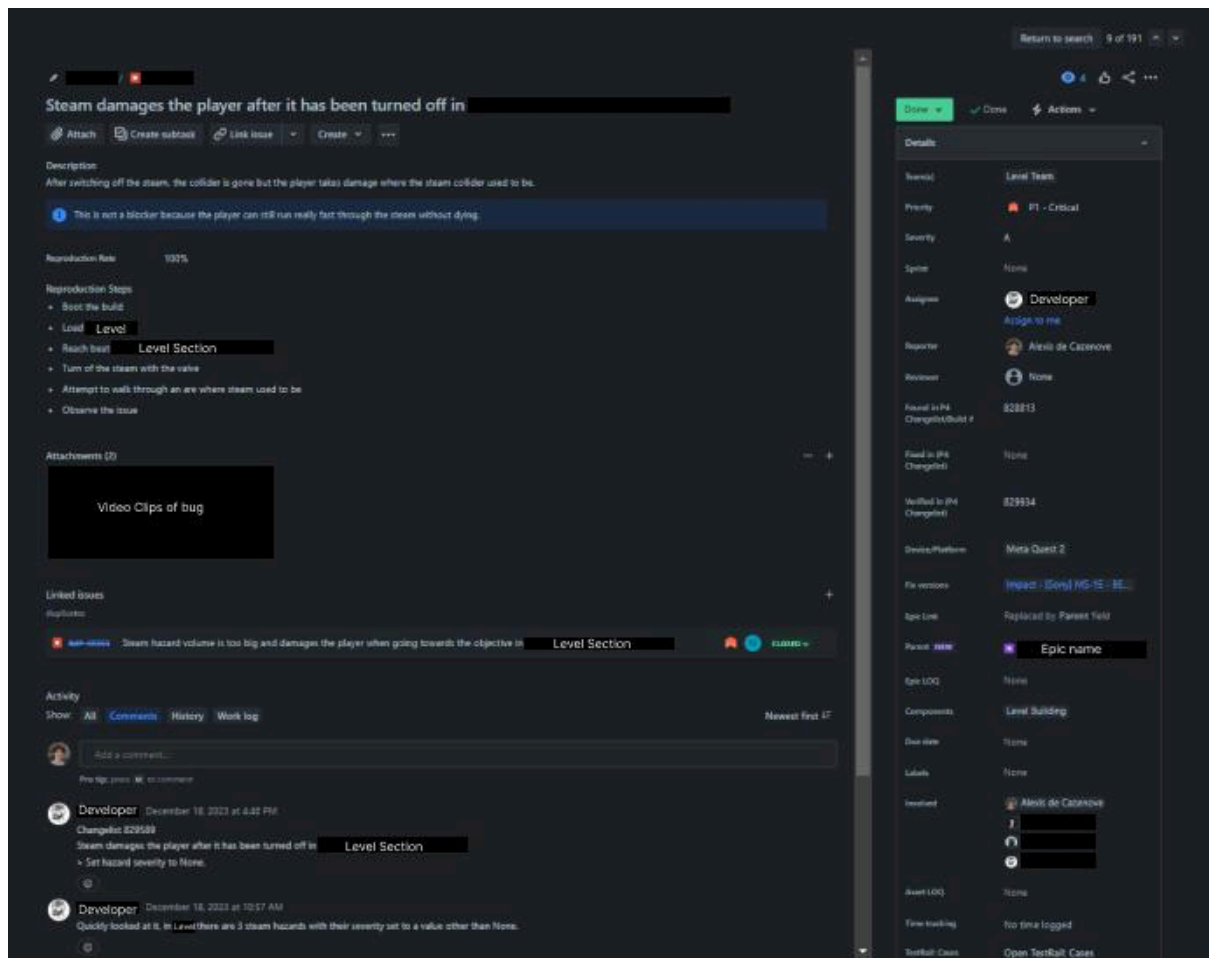Once the clips are made, the bugs can start being reported in Jira.

Figure 1: Jira bug ticket example

Some of the key information required to write a proper bug ticket (outside of the videoclip) are a short summary, a description and reproduction steps.
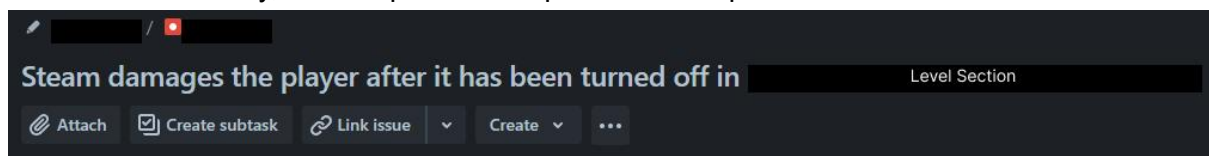

Figure 2: Bug summary

The summary needs to describe the basic issue in one sentence. The summary should give someone a good understanding of what the bug is about but does not need further details.
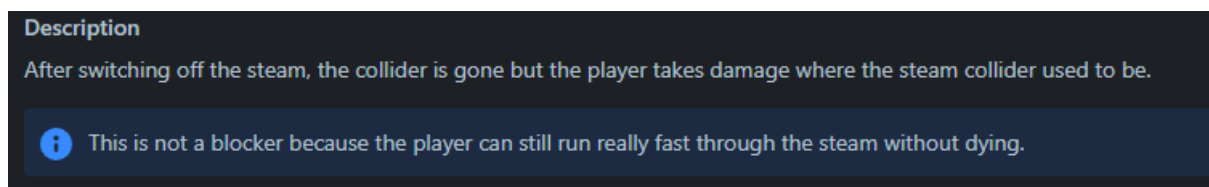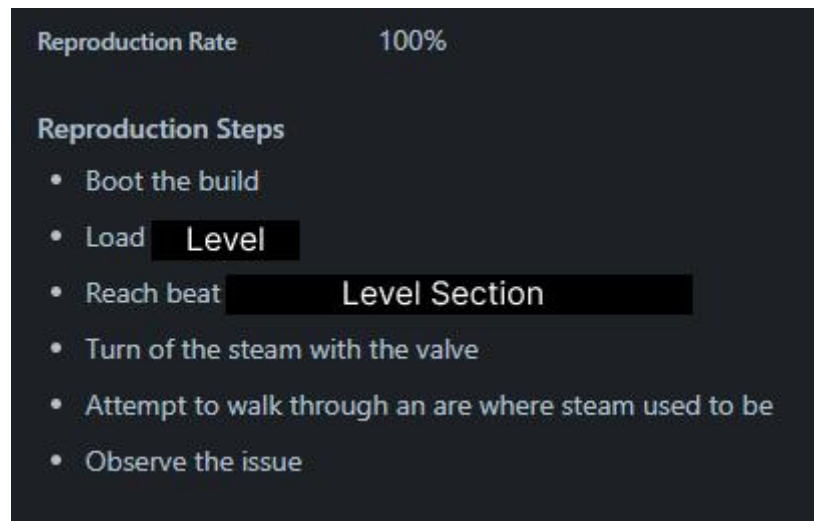

Figure 3: Bug description

The description is where the bug reporter can give further details on the circumstances of the bug's discovery or any detail in their gameplay they might deem relevant to the issue.

Figure 4: Reproduction steps

Finally, the reproduction steps give a detailed guide on how to reproduce the bug. This step is important as it allows the person fixing the bug to recreate it for themselves and be able to find the source of the issue.

Finding the reproduction of bugs is a crucial task for QA because a bug without reproduction steps is very hard to fix. It happens sometimes that bugs are found but cannot be reproduced consistently, which should also be reported, but in this case QA is tasked to find the reproduction steps before the bug is assigned to be fixed as it wastes a lot of the developer's time to try and fix a bug without clear reproduction.

There is of course more information that needs to be filled in on every ticket, such as assignee, team, milestone or severity.

The QA team is also in charge of other tasks both in and out of the studio such as making a daily report of the state of performance and gameplay in the game during delivery milestones. This report allows the producers to have an overview of where to focus their teams.

During Beta delivery milestones, the QA team and the producers of the feature, core dev and level teams take part in a daily meeting called "Triage". During this meeting, the bugs assigned to the Beta delivery milestones are reassigned in terms of priority, severity and milestone. This is to make sure that only appropriate bugs are being fixed and filter out the ones that will be fixed later for another milestone.

Another important task QA does is perform Virtual Reality Checks (VRC) and Technical Requirement Checks (TRC). VRCs and TRCs are a list of requirements that the game needs to fulfil to allow it to be distributed. Therefore, the QA team VSA checks for these requirements during their playthroughs and informs the appropriate teams within the studio when some are not met by reporting them in Jira. Once the team is confident the requirements are met, they can submit a build of the game to, in this case, Sony and Meta for their QA teams to approve the game based on the VRC and TRC requirements.

Another example of other QA tasks are test requests from other teams. An example of this would be checking if all objects in the game have the appropriate sound when hit.

A QA team can also help other studios with testing. When I started at VSA, I helped test Hellsweeper which is a game developed by a partner studio who needed extra hands to check for final bugs before release.

Personal Learning Goals

While I was looking for an internship game design I already had a pretty clear idea of what my learning goals would be focused around. Ending up with this internship did mean I had to come up with something completely new, but it proved to be rather easy since I had no experience with either QA or VR.

My first learning goal was to get a solid understanding of the QA process in game development. Initially, I wanted to support this learning goal by making a diagram for the studio's onboarding of new QA interns for the project. However, I came to realise that there was not much use to it since the studio wasn't planning on taking new interns in the next semester. While I could have still made for future projects, the workflow we used was a bit too specific to the project for it to make sense. I decided instead to elaborate my knowledge in detail in this report.

My second learning goal was to involve myself with the game design process of the project to still have some connection to my future endeavours. I did this by writing feedback documents for parts of the game throughout my internship, which I submitted to the design team through Jira.

Lastly, I wanted to take this opportunity to familiarise myself more with VR from a technology, market and game design perspective. VR is still growing as a video gaming medium and the technology allows for many interesting design possibilities which, as a designer who had never played VR before, meant I could really learn a lot from playing a VR game every day. To support this learning goal, I decided to dedicate a segment of my presentation on VRand its intricacies.

Competences

Technical Knowledge and analysis

By working with various VR headsets on a daily basis, I learned a lot of important distinctions between them that need to be considered when developing a game for any given VR system. To give an example, Playstation VR and Meta Quests run on different runtimes which can lead to things looking very differently even when playing on the same build on each system.
Another example would be the different buttons that some VR systems have. Playstation VR "grip" is not a trigger but a button with touch sensors which means the code has to take this into account.
There are many differences between VR systems to take into account when developing a VR game, which in some cases require the developer to choose which system to develop for.

Being a part of the QA team and experiencing many bugs every day, I got to observe and learn about various systems used to improve the performance of the game such as Precomputed visibility and Hierarchical Level of Detail (HLOD). Precomputed visibility only resenders the part of the level which the player can see, meaning a lot of processing power can be saved from rendering unnecessary things.
HLODs are similar to precomputed visibility but it acts on individual objects. This means that parts of objects in the level are not rendered when the player does not have direct line of sight.

Enterprising attitude

I took the initiative to write feedback documents for the design team because I felt like having a game design mindset while working in QA gave this unique opportunity and perspective that could help the project. This also encouraged me to ask questions to the designers on some of the game design throughout the game and learn more about game design in general.

While preparing for the Beta delivery milestone, the QA team and the lead producer would hold meetings to plan and organise the upcoming weeks of testing. During these meetings, the team would reflect on previous experiences and find ways to improve the workflow. One of my contributions during these meetings was with the creation of the "QA bingo sheet", a Google spreadsheet meant to help the QA team keep track of what features and settings have been tested this week and which haven't. I helped structure and innovate on the creation of this spreadsheet by taking the initiative and providing my insight as a newer member of the studio.

Ability to learn and reflect

When speaking of my ability to learn, considering the fact that I had never done QA and never played in VR meant that this internship was non-stop learning for me. The QA workflow is very different from anything I've done in and outside of CMGT but I was able to quickly learn and adapt to the point of being independent and contributing my share to the

project. This combined with discovering VR technology from a user and developer point of view meant my ability to quickly learn, reflect and adapt were really tested.
Outside of this constant learning, my company coach and I held frequent meetings to reflect on how things were going.

Communication

Communication is a very important skill to have in general and QA is certainly no exception to this. It is crucial to be able to efficiently and clearly articulate yourself when writing a bug ticket to avoid any confusion or back and forths. A challenging aspect of communication in QA is that you know the game better than any developer in the studio and it's easy to forget this and omit important details when discussing a bug.

Reflection

Having done an internship when I was 19 years old, I remember little I understood what it meant to be a part of a company. I was constantly waiting to be told what to do and when nobody did, I assumed there was nothing to do. I didn't take the initiative back then to find my own way to contribute which led to an overall negative experience.
Going into this internship, I wanted to push myself to contribute in whatever way I could to avoid this situation again. I remember distinct moments when I pushed myself to take the initiative to communicate something or double check something even though my subconscious was telling me it wasn't necessary. Overall, I feel like I did much better than my previous internship and I can see that I learned from my mistake.

When considering what I could have improved, I think that I should have relied more on my company coach when it comes to asking about the upcoming steps in the project. I was dealing with new things a bit too much "in the moment" which meant it was hard for me to find a structure in this internship. This was especially apparent during the beta delivery milestone since our workload increased and I suddenly felt like there was less time to focus on other things. Instead, I could have asked my company coach more about what to expect in the upcoming week/months to better prepare and structure my activities based on the workload of different phases. In general, I felt like I didn't make the most use of being surrounded by people who have experience in various domains, especially when it comes to learning new things.

Lastly, I think working hybrid, 3 days at home and 2 days at the office, taught me how much it matters to me to be around the people I work with. I found that when I was working from home I was a lot less motivated and interested in what I was doing. Seeing people working together on the same project and having people to communicate with easily felt inspiring and motivating. To remedy this, I made the decision to work a 3rd day at the office to keep me motivated in the internship.

Conclusion

In conclusion, my internship at Vertigo Studios Amsterdam has been an unexpected yet very enriching experience. Despite not seeing myself in a quality assurance role within VR game development, I embraced the opportunity wholeheartedly and found it to be very rewarding. Throughout my time at Vertigo, I looked deeply into the intricate role of the quality assurance workflow within game development, particularly within the environment of VR gaming. From rigorously testing builds to effectively communicating issues using Jira, I have honed my ability to identify and address challenges that arise during the development process.

Moreover, my active involvement in the game design process allowed me to seamlessly integrate my passion for game design with the practical aspects of game development. By providing insightful feedback to the design team and immersing myself in the complexities of VR technology, I have expanded my knowledge base and skill set in ways I hadn't anticipated.

Demonstrating a proactive approach, I took the initiative to streamline workflows and actively sought opportunities to contribute to the project's success. Reflecting on past internship experiences, I realised the importance of seizing every opportunity to learn and grow, leveraging the expertise of my colleagues to enhance my own understanding and impact within the company.

Despite the challenges posed by the hybrid work environment, I adapted by increasing my presence in the office, maintaining a strong sense of connection with my colleagues.

In summary, my internship at Vertigo Studios Amsterdam has not only equipped me with valuable technical skills and industry insights but has also instilled in me a sense of confidence and adaptability crucial for navigating a career in game development. I am deeply grateful for the experiences and opportunities afforded to me during this internship and eagerly anticipate applying them to future endeavours in the field.