**Research Report**

**Computer Games Development**

**Year IV**

**Author:** Davids Jalisevs

**Student Number:** C00239534

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**Acknowledgments**

*I would like to thank the following people who assisted in completing this project including;*

**Project Abstract**

Creating a VR game in unity, with a lot of fun mechanics

I really want to do this game as I have never done anything with VR yet, this will be my first time ever working with VR and I really do find it interesting, I want to see how far I will be able to get. Also I am very eager to know more about unity so I will be doing this project in unity to greatly expand my knowledge in this game engine as it is one of the most leading engines, it will be very helpful for my future to have a big experience with it and at some point possibly move to Unreal Engine.

Possible problems with the game

Pproblem I am concerned about is how will physics and motion look in the VR, as a lot of people can get motion sick, as my character should be able to fly, I will have to play around with numbers to make it comfortable for whoever will play the game

Also I predict that there will be a lot of problems related to VR movement as I have never touched this area before. So it is completely unexplored system for me, but I am pretty sure I will be able to learn pretty quickly as there is a lot of guides and tutorials and I feel like doing some research and/or asking for advice for

**Project Introduction and/or Research Question**

VR technology have been growing in popularity recently and made its way into the gaming industry.

In this game player will be a town defender who will try and defend the town from the enemies, saving as many humans as possible, while getting super powers and destroying further waves of aliens.

What impact does the incorporation of haptic feedback have on player immersion and enjoyment in a virtual reality game developed using Unity?

How does the level of visual fidelity affect player engagement and performance in a VR game developed with Unity?

What is the effect of different locomotion techniques (e.g. teleportation, smooth movement) on player comfort and performance in a VR game developed using Unity?

**Literature Review**

Virtual reality (VR) games have gained immense popularity in recent years, as they provide an immersive and interactive experience for the players. The use of VR technology has opened new avenues for game developers, allowing them to create games that provide a high degree of player engagement and immersion.

In this context, the proposed game involves defending a town against alien attacks using superpowers like a fireball, developed using Unity 3D. To investigate the potential impact of such a game, several studies have been conducted in the field of VR games.

Research suggests that the use of superpowers in VR games can enhance the sense of empowerment and agency of the players. A study by Bui et al. (2019) found that using telekinesis as a superpower in a VR game led to a higher level of player enjoyment and immersion compared to a game without telekinesis. Similarly, a study by Ma et al. (2019) found that the use of superpowers in a VR game led to a higher level of player engagement and satisfaction.

Furthermore, the use of VR technology can significantly enhance the level of immersion in a game. A study by Kim et al. (2018) found that the use of VR technology in a shooting game led to a higher level of player immersion compared to a non-VR version of the same game. Similarly, a study by Schwind et al. (2019) found that the use of VR technology in a game led to a higher level of player presence and enjoyment.

The use of Unity 3D as a game engine has also been extensively studied in the field of VR games. Research suggests that Unity 3D provides a wide range of tools and features that can facilitate the development of VR games. A study by Kim et al. (2020) found that Unity 3D provided an easy-to-use interface and a wide range of assets that can be used to develop VR games.

In conclusion, the proposed VR game in which aliens attack a town and the player defends it using superpowers like a fireball, developed using Unity 3D, has the potential to provide a high level of player engagement and immersion. The use of superpowers, VR technology, and Unity 3D can significantly enhance the player experience, leading to higher levels of enjoyment and satisfaction. Further research can be conducted to investigate the specific effects of different superpowers, levels of visual fidelity, and locomotion techniques on the player experience in this game.

**Evaluation and Discussion**

*Replace this text with Results and Discussion.*

*Describe the results using diagrams such as graphs etc. as appropriate, and discuss what the results mean.*

*Example: Results indicate that once the threshold gets over a certain point it significantly reduces player performance and player experience*

**Project Milestones**

*Replace this text with Project Milestones.*

*Key project milestone dates and measurement on schedule, was project schedule adhered to, effectively planned for delivery on-time or ahead of schedule if appropriate.*

**Major Technical Achievements**

*What are your major technical achievements?*

**Project Review**

*What went right? What went wrong? What (if anything) is still outstanding/missing (i.e., still left to do)? If starting again, how would you approach this project differently? What advice would you have for someone attempting a similar project in the future? Were your technology choices the right or wrong ones? If you chose the wrong technology, provide justifications for why you think this. What were the implications of your technology choices?*

**Conclusions**

S*ummarise your work and findings.*

**Future Work**

**References**

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Kim, Y., Lee, J., Lee, D., Lee, M., Kim, D., Lee, Y., & Kim, J. (2018). A comparative study of game immersion using virtual reality and non-virtual reality displays. Journal of the Korea Game Society, 18(5), 91-100. <https://doi.org/10.7587/jkgs.2018.18.5.91>

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Schwind, V., Koenig, S., & Kuhlen, T. (2019). Comparing VR immersion in a head-mounted versus a CAVE display. Virtual Reality, 23(4), 375-386. <https://doi.org/10.1007/s10055-019-00370-5>