



FPP Game Development and Designing

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Abstract: Gaming is one of the top among the entertainment industry. Inside this the First Person Perspective parkour type games are currently in high demand but comparatively low in production. The main reason for this is developers are not confident in dealing the motion sickness problem that arises while playing such games. This is served as a motivation for us to take this challenge and develop a game code named 'PROJECT GIGATTAX' that is aimed to be VR compatible from scratch which will be visually and mechanically appeasing as well as help overcome the motion sickness issue. This paper is they survey conducted to explore they different methods and aspects to game development and designing. An important aspect to this game will be the accurate execution of dynamic motion to simulate heavy swaying in first person which will let the player feel as if he was seeing through the characters eyes. The Giant battles maybe be fictional but we have to keep the physics of the fight as close to reality as possible.

Keywords - *Gaming, First Person Perspective, motion sickness VR, game development and designing, dynamic motion, physics*

I. INTRODUCTION

The video game industry is the industry involved in the development, marketing, and monetization of video games. It encompasses dozens of job disciplines and its component parts employ thousands of people worldwide. Modern personal computers owe many advances and innovations to the game industry: sound cards, graphics cards and 3D graphic accelerators, faster CPUs, and dedicated co-processors like PhysX are a few of the more notable improvements. Sound cards, for example, were originally developed for an addition of digital-quality sound to games and only later were they improved for the music industry. Graphics cards were originally developed to provide more screen colors; and later on to support graphical user interfaces (GUIs) and games. This drove the need for higher resolutions and 3D acceleration. Players become fourth-party developers, allowing for more open source models of game design, development and engineering. Players also create modifications (mods), which in some cases become just as popular as the original game for which they were created.

II. LITERATURE SURVEY

Rasha Morsi [1], et al. The idea of having curricular materials that are just as 'fun' and hard to put down as games are needed as well as intriguing. The design and development of this type of tool to contain important and solid educational content is in even greater need by educational professionals. It is common to see students spending endless hours playing games while the same is not imaginable studying for a test. Games are engaging and fun and it is worthwhile researching their use in education. They provide the ability to process information quickly, utilize parallel processing and visual processing techniques, improve data organization, critical thinking and problem solving skills. These are just a few skills gained through playing games.

Daniel Thalmann [2], et al. Proposes an efficient walk component for the reactive animation of biped characters of any size and proportions. The movement can be controlled by changing independently its style, desired speed, and desired target position. Compared to traditional approaches, our gait style parameterization provides an efficient way to generate a multitude of varied walking animations, as needed, for example, by crowd simulations. The key specifications is to allow changes at any time as natural-looking movements tend to fluctuate over time. The resulting challenge addressed is to maintain the smoothness of the gait and the coherence of the steps while the speed and style parameters are changing. Combined with the introduction of an angular speed parameter, it is shown how the walk component deals with speed and position control to ease higher-level behavioral control. Edmond Prakash [3], et al. One area that has gained special attention is modeling the game environment such as terrain and buildings. This article presents the continuous level of detail terrain modeling techniques that can help generate and render realistic terrain in real time. Deployment of characters in the environment is increasingly common. This requires strategies to map scalable behavior characteristics for characters as well. To enhance the player experience, the authors present the concept of player adaptive entertainment computing, which provides a personalized experience for each individual when interacting with the game.

Uolevi Nikula [4], et at. Assessed the knowledge gaps between students majoring in computer science and game developer needs in two ways; a longitudinal study on a game development course and a focused case study on developing a game. Based on our results there are differences in communication and planning approaches between the CS students and game developers, and skill needs for game development content on a traditional computer science course curriculum.

Gareth R. White [5], et al. In order to design new methodologies for evaluating the user experience of video games, it is imperative to initially understand two core issues. Firstly, how are video games developed at present, including components such as processes, timescales and staff roles, and secondly, how do studios design and evaluate the user experience.

Author discusses the video game development process and the practices that studios currently use to achieve the best possible user experience. It will present four case studies from game developers Disney Interactive (Black Rock Studio), Relentless, Zoe Mode, and HandCircus, each detailing their game development process and also how this integrates with the user experience evaluation. The case studies focus on different game genres, platforms, and target user groups, ensuring that this chapter represents a balanced view of current practices in evaluating user experience during the game development process.

Emilie Saulnier [6], et al. This paper focuses on every high-end platform for an increase in complexity, both in terms of development techniques and in terms of quantity of art assets. On average each console is ten times more powerful than its predecessor and tends to require double the team size in order to cope. As development teams once again have new hardware fast approaching on the horizon, the question arises of how we will field the increase in content creation.

Kirriemuir [7], et al. Author intended as a timely introduction to current thinking about the role of computer games in supporting children's learning inside and out of school. It highlights the key areas of research in the field, in particular the increasing interest in pleasurable learning, learning through doing and learning through collaboration, that games seem to offer. At the same time, the review takes a measured tone in acknowledging some of the obstacles and challenges to using games within our current education system and within our current models of learning. It goes on to propose some ways in which designers, researchers and educational policy makers might draw on the growing body of research in the field to create learning resources and environments that go beyond a sugar-coating of 'fun' to the full engagement that computer games seem to offer so many children today.

Sr no.	Authors	Description
1	Morsi Rasha and Edward Jackson	The purpose of this paper is to present gaming as an educational tool and its use in engineering education. The paper will present and review tools that can be used in the development of educational games as well as present the materials education game (MEG) environment.
2	Boulic, Ronan, Branislav Ulicny, and Daniel Thalmann.	It discusses the walk cycle animation seen in various games. The walking animation is indispensable for any game featuring humans or human-like characters. Here it proposes an efficient walk component for the reactive animation of biped characters of any size and proportions. The movement can be controlled by changing independently its style, desired speed and desired target position.
3	Prakash Edmond	In this article, the authors report the rapid advancement that has been observed in the way games software is being developed, as well as in the development of games content using game engines.
4	Kasurinen, Jussi, Saeed Mirzaeifar, and Uolevi Nikula	The paper assesses the knowledge gaps between students majoring in computer science and game developer needs in two ways; a longitudinal study on a game development course and a focused case study on developing a game.
5	McAllister, Graham, and Gareth R. White.	The case studies focus on different game genres, platforms, and target user groups, ensuring that this chapter represents a balanced view of current practices in evaluating user experience during the game development process
6	Emilie Saulnier	Game development, how will the games be compatible with the next generation hardware and the evolution of the game development industry over the years
7	Kirriemuir, John, and Angela McFarlane.	This review is intended as a timely introduction to current thinking about the role of computer games in supporting children's learning inside and out of school. It highlights the key areas of research in the field, in particular the increasing interest in pleasurable learning.

III. CONCLUSION

This paper helped us to kick start our project and look up proper references and proceed in a refined and proper manner. PROJECT GIGATTAX is currently under development. Further refinement of the models, animations as well as development phase will be conducted. Further development will add new features to the game as well. UI and Environment design will also be completed to give the testing phase a visually appealing feel as well. Different playable characters as well as bosses is also under considerations. New levels and VFX effects will also be added during the development process. The main aim is to give the game VR compatibility to achieve the main goals of PROJECT GIGATTAX.

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REFERENCES

- [1] Morsi, Rasha, and Edward Jackson. "Playing and learning? Educational gaming for engineering education." 2007 37th Annual Frontiers In Education Conference-Global Engineering: Knowledge Without Borders, Opportunities Without Passports. IEEE, 2007
- [2] Boulic, Ronan, Branislav Ulicny, and Daniel Thalmann. "Versatile walk engine." J. Game Dev. 1.1 (2004): 1-29.
- [3] Prakash, Edmond, et al. "Advances in games technology: Software, models, and intelligence." Simulation & gaming 40.6 (2009): 752-801.
- [4] Kasurinen, Jussi, Saeed Mirzaeifar, and Uolevi Nikula. "Computer science students making games: a study on skill gaps and requirement." Proceedings of the 13th Koli Calling International Conference on Computing Education Research. 2013.
- [5] McAllister, Graham, and Gareth R. White. "Video game development and user experience." Game user experience evaluation. Springer, Cham, 2015. 11-35.
- [6] Emilie Saulnier et al. "Games development: how will you feed the next generation of hardware?." ACM SIGGRAPH 2004 Panels. 2004.
- [7] Kirriemuir, John, and Angela McFarlane. "Literature review in games and learning." (2004).

