Project Synopsis

Multiplayer Shooting Game Using Unreal Engine

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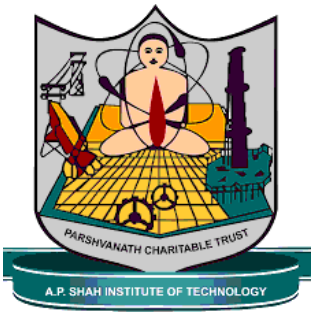

Bachelor of Engineering (BE)

Department of Computer Engineering

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Multiplayer Real World Game Using Unreal Engine

Abstract:

The goal of this project is to prove the development of a videogame using Unreal Engine, based on an agile methodology that is viable in an economic, quick and sustainable way. This methodology has four stages that are: preproduction, production, testing and postproduction that were advantageous to finish the project on time. To achieve this, we have developed a thrilling multiplayer cooperative third-person shooter featuring massive swarms of artificially intelligent zombies that recklessly rush their living prey. Focused on fast-paced gameplay. In conclusion, we achieve to prove the applicability of the four stages methodology since we made a high quality game in a short period of time, using limited resources.

- **Introduction**

  Benefits of using a game engine like Unreal Engine are: reusable code with libraries, the concept of object oriented programming and process of computer generated graphics. The engine has specialized libraries for game development. In addition, the use of object oriented programming, makes it possible to create class the traditional way, but in a very intuitive way such is the case with the Character class, this class contains all the necessary code to create a character on the game.

- **Literature Review**

  Title- Developing a Videogame using Unreal Engine based on a Four Stages Methodology

  Author - Carlos Mauriccio Torres-Ferreyros, Matthew Alexander Festini-Wendorff, Pedro Nelson Shiguihara-Juárez

  About the paper - The goal of this project is to prove the development of a videogame using Unreal Engine, based on an agile methodology that is viable in an economic, quick and sustainable way. This methodology has four stages that are: preproduction, production, testing and postproduction that were advantageous to finish the project on time. To achieve this, we have designed and developed an action platform game following the previously mentioned stages. In conclusion, we achieve to prove the applicability of the four stages methodology since we made a high quality game in a short period of time, using limited resources.

- **Problem Statement**

  To prove the development of a videogame using Unreal Engine, based on an agile methodology that is viable in an economic, quick and sustainable way. This methodology has four stages that are: preproduction, production, testing and postproduction that were advantageous to finish the project on time.

- **Objectives**

  The objective of this project is to build a thrilling multiplayer cooperative third-person shooter featuring massive swarms of artificially intelligent zombies that recklessly rush their living prey. Focused on fast-paced gameplay. In conclusion, to achieve to prove the applicability of the four stages methodology, which is preproduction, production, testing and postproduction.

- **Scope**

  The Scope of our game is limited to survive from Zombie Apocalypse on an Island. We will be having a limited materials for our survival. We can tackle the Zombie using weapons which we found on Island, there is no option to buy weapons or other stuffs. The motive of the game is to survive as well as save the Lighthouse from Zombies capturing it.

- **Benefits For Environment**

The gaming industry reaches on in the people worldwide and is thus one of the most influential industries in the world. Although this is impressive in itself, what is truly remarkable is this industry's potential to influence the behaviour of young people on a global scale. To explore this, UN Environment has been working with the gaming industry, as well as with the International Olympic Committee and the World Scouts Moment, to determine how young people can act to protect the environment.

Released in March, a new UN Environment study titled "Playing for the Planet" looks at how the gaming sector can influence the behaviour of young people to act in support of the environment.

The study found that 87 per cent of the 50 leading gaming companies demonstrate a deep commitment to making a change and are willing to support further action on this issue.

With a viewership of 3 billion hours per week, the gaming industry has the unprecedented ability to capture the attention of a vast number of people. Seeing that many young people today are concerned about the issue of climate change, and because one in five gamers are

under the age of 21, UN Environment argues that there is indeed a demand for environmental and nature-related content.

At the "Playing for the Planet" panel discussion held during the Fourth UN Environment Assembly in March 2019, important ideas and insights were discussed around the topic of gaming and youth:

- *Agents of change:* youth must be directly involved in message delivery rather than simply act as receivers because empowering young people to be agents of change is likely to lead to longer-lasting behaviour change.

- *Fostering a relationship with nature:* although video games can serve as a channel through which important environmental and social messages can be communicated, it is important not to forget about the importance of physically being in nature. "We need to get people on screens into the green and the green onto screens," said panelist Inger Andersen.

- *Influencing behaviour:* measuring outcomes and impact is a priority. There should be a way to measure whether, for example, "green nudges" in games actually impact real-world behaviour.

- **Technology Stack**

    - Unreal Engine 4 - The Unreal Engine is a game engine developed by Epic Games, first showcased in the 1998 first-person shooter game Unreal. Although initially developed for first-person shooters, it has been successfully used in a variety of other genres, including platformers, fighting games, MMORPGs, and other RPGs.

    - Adobe Fuse and Adobe Mixamo- It is a 3D computer graphics software developed by Mixamo that enables users to create 3D characters. Its main novelty is the ability to import and integrate user generated content into the character creator.

    - Blender -Blender is a free and open-source 3D computer graphics software toolset used for creating animated films, visual effects, art, 3D printed models, motion graphics, interactive 3D applications, and computer games.

    - Adobe 3DS Max- Autodesk 3ds Max, formerly 3D Studio and 3D Studio Max, is a professional 3D computer graphics program for making 3D animations, models,

games and images. It is developed and produced by Autodesk Media and Entertainment.

- Photoshop CC -Adobe Photoshop is a raster graphics editor developed and published by Adobe Inc. for Windows and macOS. It was originally created in 1988 by Thomas and John Knoll. Since then, this software has become the industry standard not only in raster graphics editing, but in digital art as a whole.

- **Applications**

  - Gaming technology has been used for over 35 years in the military. For instance, the army has virtual gun ranges set up with M16s that have been converted into what are essentially laser guns, which register on a screen displaying a virtual world of “bad guys” and “good guys” that trainees must learn to distinguish between. If you were to walk in on this type of training, you could easily see the association with gaming technology.

  - Gaming technology has been used to augment teaching finger placement and fast typing to grade school children. For instance, it might be Mario that runs along the computer screen as you successfully type the phrase or letters that appear below him. Too slow and Mario won’t make it over the lava river to rescue Princess Peach! This use of gaming technology might seem a bit obvious, but is similar to most of the learning tablets for kids that are loaded with fun games centered around reading, grammar, math, science, and even more advanced subjects like robotics.

  - Video games especially action games, have proven to be able to capture the player's attention for the entire period of the game. This is brought about by the player's need to achieve certain objectives within the game, and be able to progress to the next level.

  - An action game, for example, may require you to be very observant. It requires you to be able to move your joystick or keys while looking at the various features on your screen such as energy levels, oncoming adversaries, ammunitions left, available time among other factors, all which are vital to winning. This ensures that the player can observe and react accordingly to all requirements of that particular game.

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