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Shooting Game Using Unreal Engine

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Abstract: ***In the realm of software engineering, the gaming industry is experiencing rapid growth, with shooter games emerging as one of the most popular genres for independent video game developers. These games are characterized by their fast-paced action, requiring a combination of skills from players, including strategic thinking, hand-eye coordination, and quick reflexes. To develop such games, developers can choose from a range of game engines, including Unity3D, Unreal Engine, Game Maker, and Godot, each offering access to a comprehensive suite of technologies and tools. Among these engines, Unity3D stands out as an integrated development tool, commonly used to create interactive content, such as video games and real-time 3D animations. Its user-friendly interface and cross-platform capabilities make it an ideal choice for independent developers, while its extensive library of assets provides a wealth of resources for creating engaging and immersive shooter games. This paragraph, with its professional tone, would be suitable for inclusion in a project abstract or other formal documents related to the field of software engineering. Our project demonstrates the creation of a video game using Unreal Engine and an agile methodology, which consists of four stages: preproduction, production, testing, and post-production. Through careful planning and execution, we were able to create a high-quality game in a short period of time with limited resources. This methodology has proven to be efficient, economical, and sustainable, reducing development costs and ensuring faster time to market. Our project showcases the applicability of this methodology, reinforcing our belief that adopting agile methodologies can lead to successful and sustainable projects in the gaming industry.***

Keywords: Shooting Game, Unreal Engine, Game Development, Design, Gameplay, AI

I. INTRODUCTION

The shooter game genre is known for its fast-paced gameplay and intense action, and has become one of the most popular genres in the video game industry. To create a successful shooter game, developers must carefully consider the gameplay mechanics, narrative, and multiplayer modes. The gameplay in shooter games typically revolves around combat, with the player using a variety of weapons to take down enemies. The weapons must feel satisfying to use and each have their own strengths and weaknesses. The player must also be challenged with limited ammo and strategic choices to make during gameplay. In addition to combat, shooter games often feature other gameplay mechanics such as stealth, exploration, and puzzle-solving, which can add depth to the gameplay and keep players engaged throughout the game. The narrative in shooter games can vary greatly, from simple action stories to complex character-driven plots. However, no matter the narrative, it must complement the gameplay and provide a sense of purpose to the player. Storytelling can be done through cutscenes, dialogue, and environmental elements, and must be engaging and immersive to keep the player invested in the game. Multiplayer modes are also a crucial component of many shooter games, and must be balanced, fun, and engaging for players. Modes such as deathmatch, capture the flag, and objective-based gameplay can add variety to the multiplayer experience.

II. HISTORY OF GAMING

The history of video games began in the 1950s and 1960s as computer scientists began designing simple games and simulations on minicomputers and mainframes. Spacewar! Was developed by Massachusetts Institute of Technology (MIT) student hobbyists in 1962 as one of the first such games on a video display. The first consumer video game hardware was released in the early 1970s. The first home video game console is the Magnavox Odyssey, and the first arcade video games are Computer Space and Pong. After its home console conversions, numerous companies sprang up to capture Pong's success in both the arcade and the home by cloning the game, causing a series of boom and bust cycles due to oversaturation and lack of innovation. By the mid-1970s, low-cost programmable microprocessors replaced the discrete transistor–transistor logic circuitry of the early hardware, and the first ROM cartridge-based home consoles arrived, including the Atari Video Computer System (VCS). Coupled with rapid growth in the golden age of arcade video games, including Space Invaders and Pac-Man, the home console market also flourished. The 1983 video game crash in the United States was characterized by a flood of too many games, often of poor or cloned qualities, and the sector saw competition from inexpensive personal computers and new types of games being developed for them.

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The crash prompted Japan's video game industry to take leadership of the market, which had only suffered minor impacts from the crash. Nintendo released its Nintendo Entertainment System in the United States in 1985, helping to rebound the failing video games sector. The latter part of the 1980s and early 1990s included video games driven by improvements and standardization in personal computers and the console war competition between Nintendo and Sega as they fought for market share in the United States. The first major handheld video game consoles appeared in the 1990s, led by Nintendo's Game Boy platform.In the early 1990s, advancements in microprocessor technology brought two major technology shifts, including the introduction of optical media via CD-roms and real-time 3D polygonal graphic rendering. Both aspects were readily incorporated into personal computers and creating a market for graphics cards, including Sony's fledgling playstation console line, pushing Sega out of the console hardware market while diminishing Nintendo's role. [1]

III.RESEARCH METHODOLOGY

The first step is to identify the interests of people for collecting the data. This research includes gathering primary data and secondary data which includes observations, questionnaires, research papers, social media and other resources. The software we will be using is unreal engine.

IV.LITERATURE SURVEY

Video games are immensely popular among people with annual market worth over $175 billion and no less than 3 billion players worldwide. With high-speed internet, gamers can play multiplayer games and meet new people online with same interests leading to growing this community around this hobby. Through papers we referred, we tried to cover all the relevant information and topics which helped us for this project.

IMMERSION: In the realm of video games, immersion is defined as either the process of becoming engaged in the gaming environment or the transference of psychological consciousness from reality to the gaming environment (Brockmyer et. Al.,2007). In addition, immersion acts as a state of being present within the game (Wirth et al., 2007). Video game researchers study immersion to better understand player engagement, pleasure, and experience during gameplay

There are some similar games developed using unreal engine as below:

1) *Videogame using Unreal Engine based on a Four Stages Methodology:* For the game development of the Vermillion game stages and areas proposed by the IGDA (International Game Developer Association) were used. Which are: Critical Game Studies, Games and Society, Game Design, Game Programming, Visual Design, Audio Design, Interactive Storytelling, Game Production and Business of Gaming. For purposes of our project, we didn't use the last three development areas that are focused on the business area.[2]
2) *S.T.A.L.K.E.R 2:* A first-person shooter set in a post-apocalyptic world with horror elements. It is a sequel to the classic STALKER game. You're not being hunted here, but you are the hunter, curious? I'll let you wait for the game.You can expect it to be a big open-world FPS game where your decision will affect the world. So, it should be fascinating to see where it takes you.[3]
3) *Quantum Error:* Quantum Error is an upcoming horror game following Alien isolation's footsteps. Of course, we can't tell if it will be that good, but the teaser trailer shows an exciting first look at the weapons, creatures, and vehicles.An indie game studio is developing it. So, if this picks up, the developers would be proving their potential for future titles.[3]
4) *NOVA Legacy:* N.O.V.A. Legacy brings you the old-school FPS experience from the epic first episode of the critically acclaimed N.O.V.A. saga – all in a compact package. Kal Wardin, our hero, is a retired N.O.V.A. veteran summoned once again to don his Mobile Armored Suit in defense of the Colonial Administration forces.[4]

Above mentioned first 3 are games developed in unreal engine and the last one NOVA is an android game. The difference between both are graphics, storage and playing experience. Unreal engine games also have better pixels, accurate peripherals than mobile phone games. Computer hardware can be customized as required so we can get a better experience which cannot be done in mobile games.

V. SCOPE OF PROJECT

1) Serve players a better gaming experience.
2) We wish to make the players feel better as far as visuals are concerned and give them a story to live.
3) In future, given the time and skill-set, we may try and improve the game objectives and graphics, storyline for a much better experience.

VI. TECHNOLOGIES USED

A. Unreal Engine

Unreal Engine (UE) is a 3D computer graphics game engine developed by Epic Games, first showcased in the 1998 first-person shooter game Unreal. Initially developed for PC first-person shooters, it has since been used in a variety of genres of games and has seen adoption by other industries, most notably the film and television industry.[5]

B. Visual Studio Code

Visual Studio Code is a source-code editor which is made by Microsoft for Windows, Linux and macOS. Its features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.

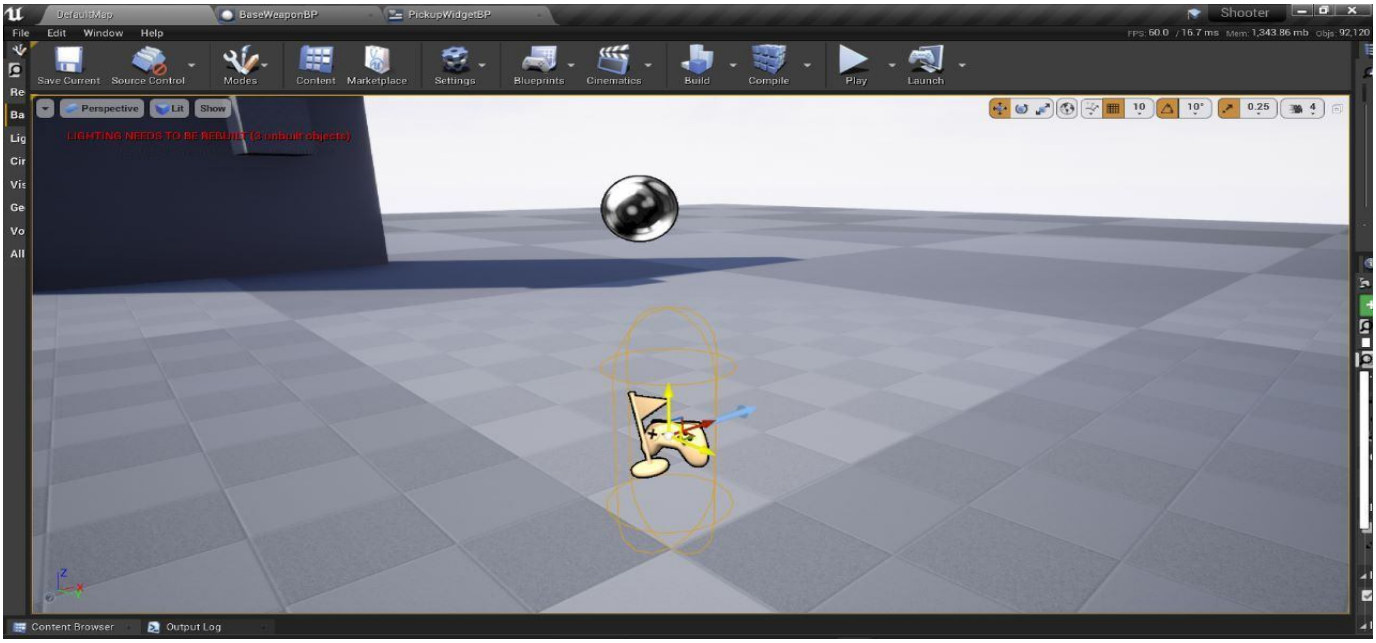


Fig 1. Game Controller

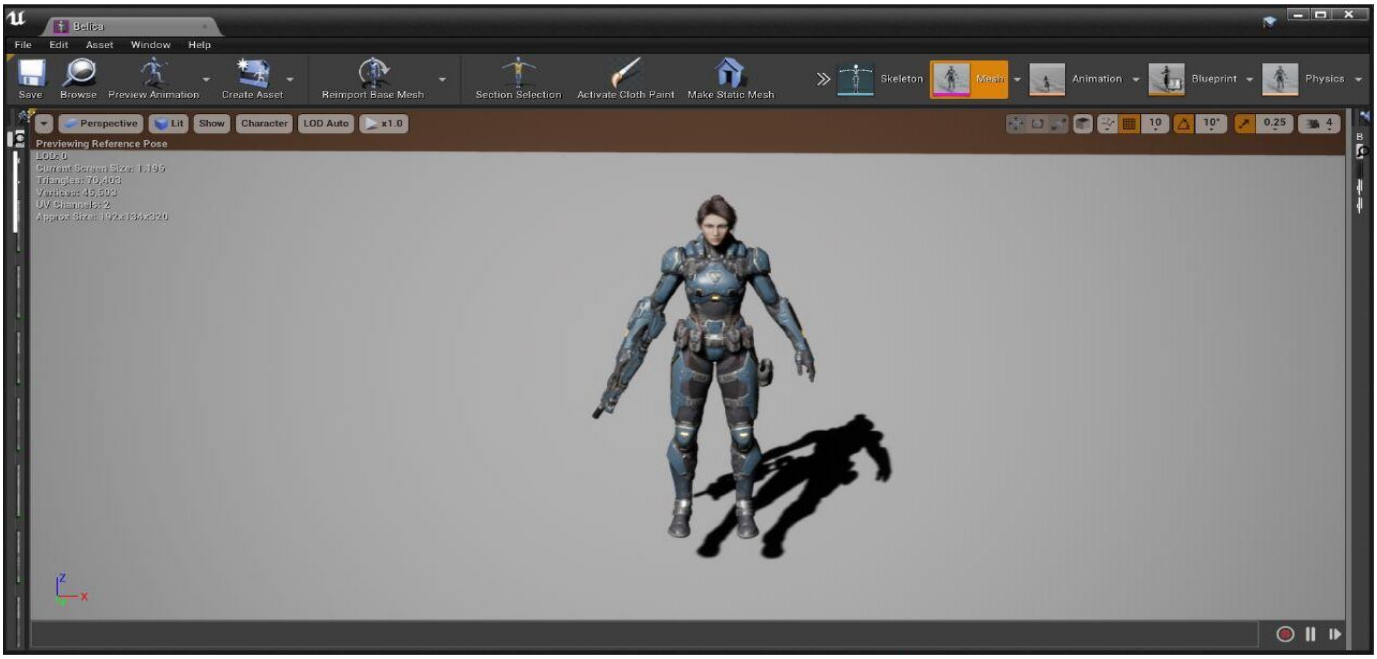


Fig 2. Main Character

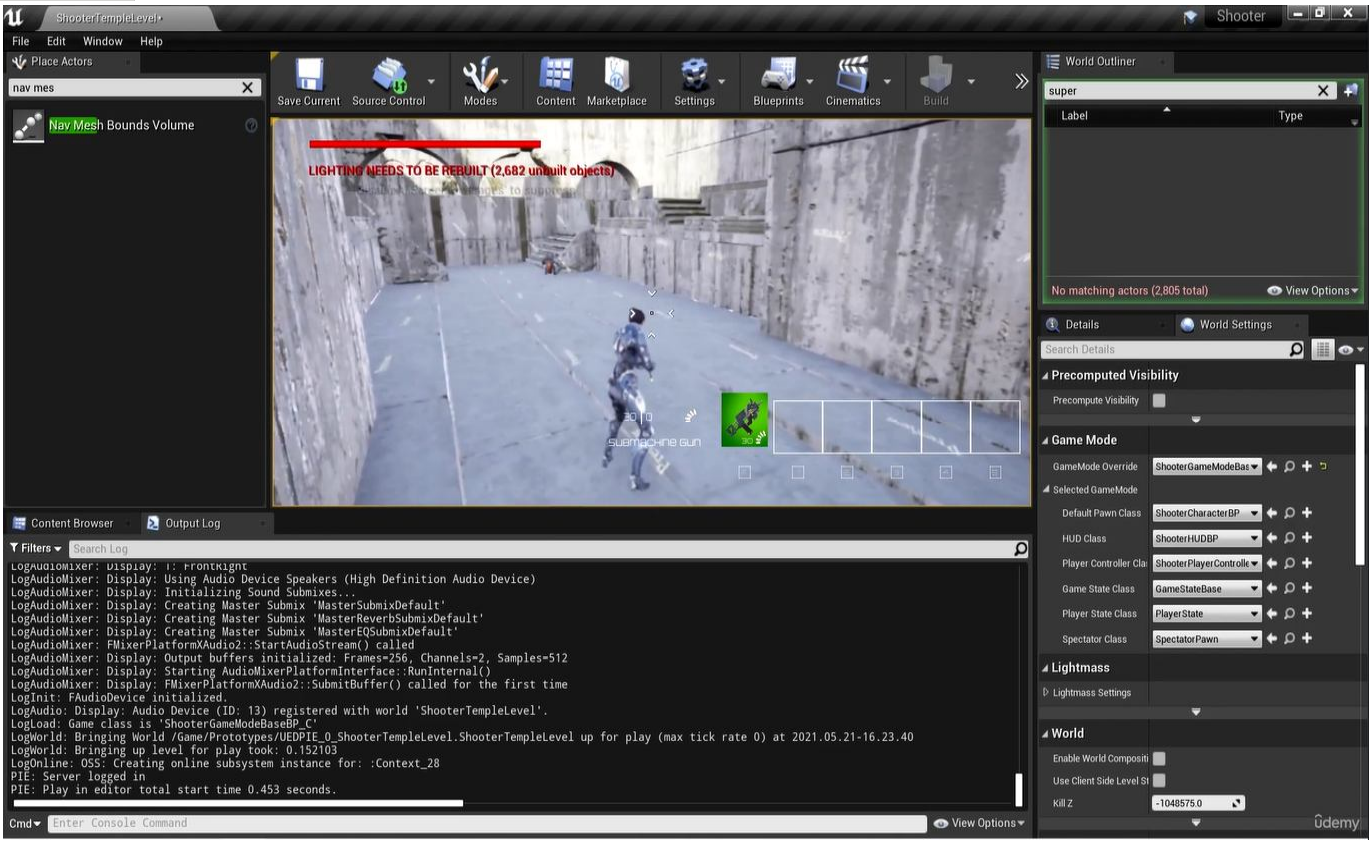


Fig 3. Player in Game

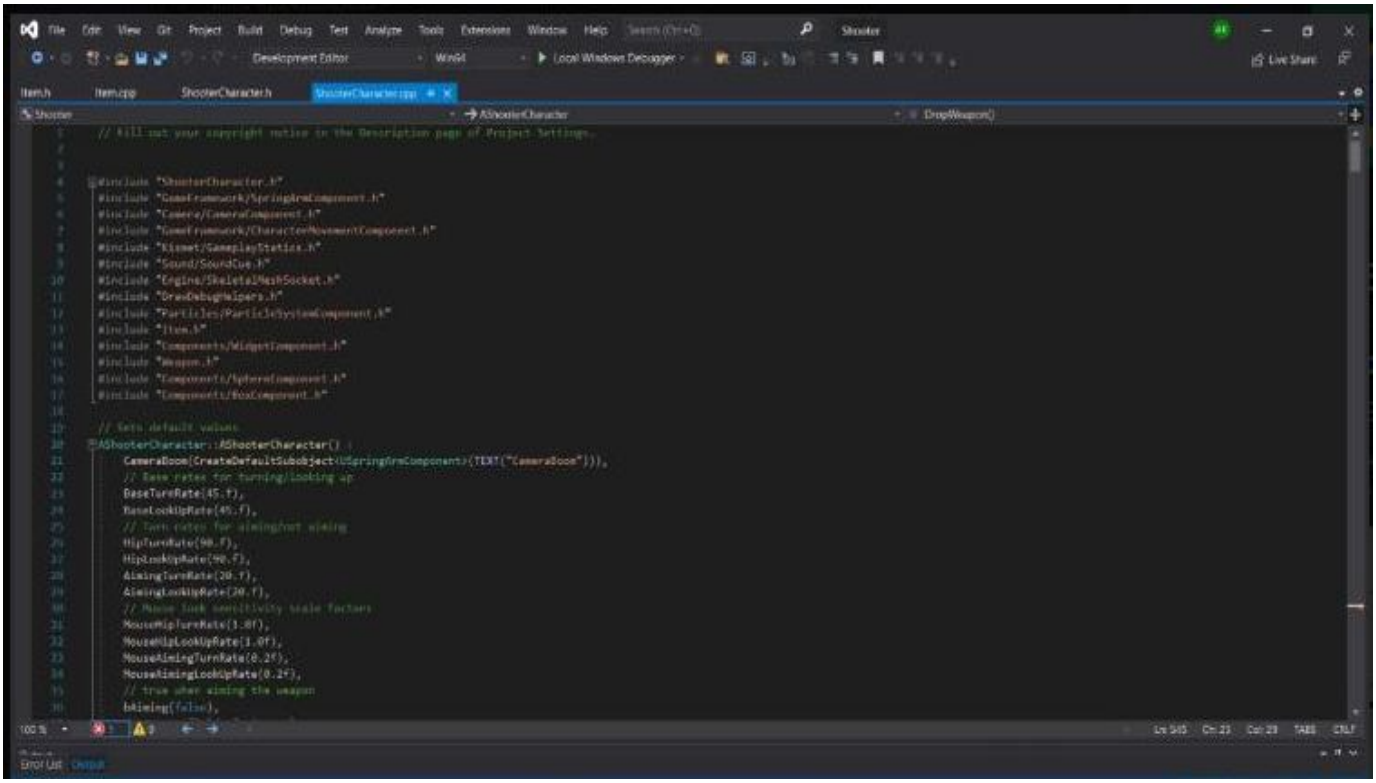


Fig 4. Part of Game Code

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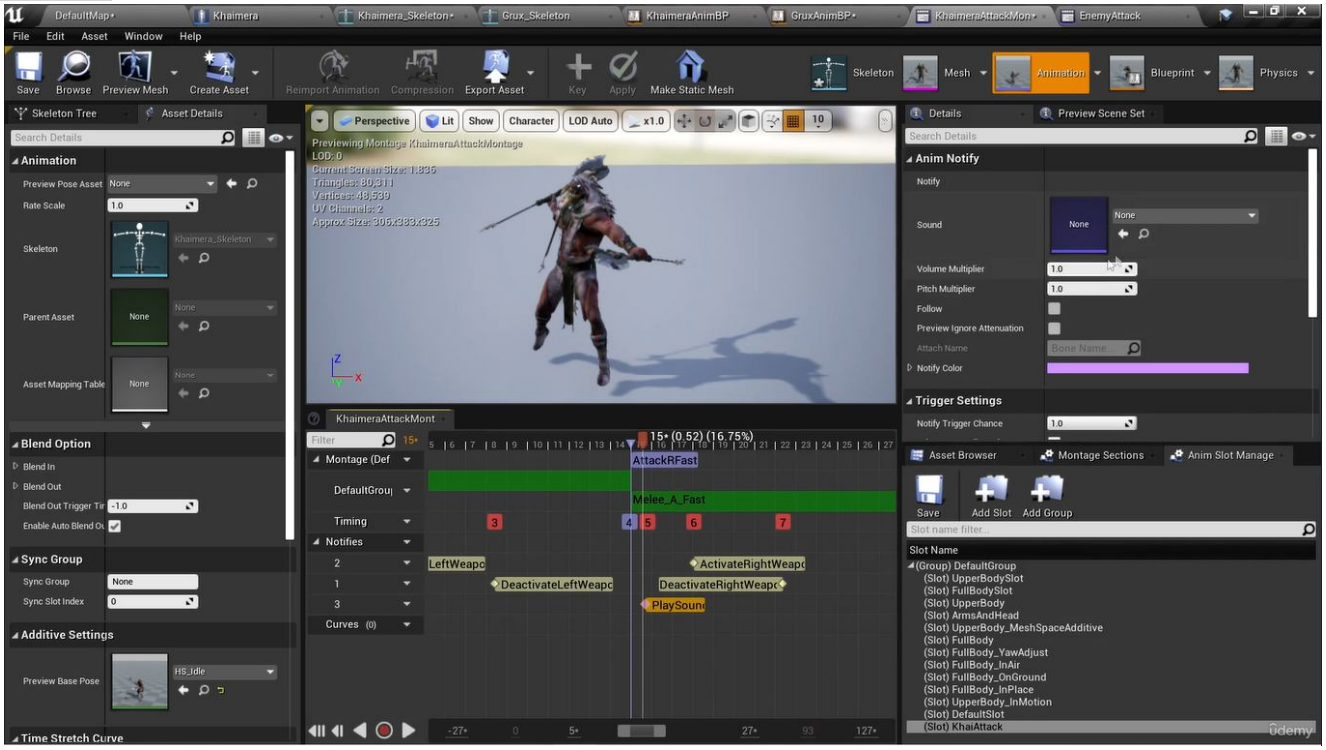


Fig 5. Enemy

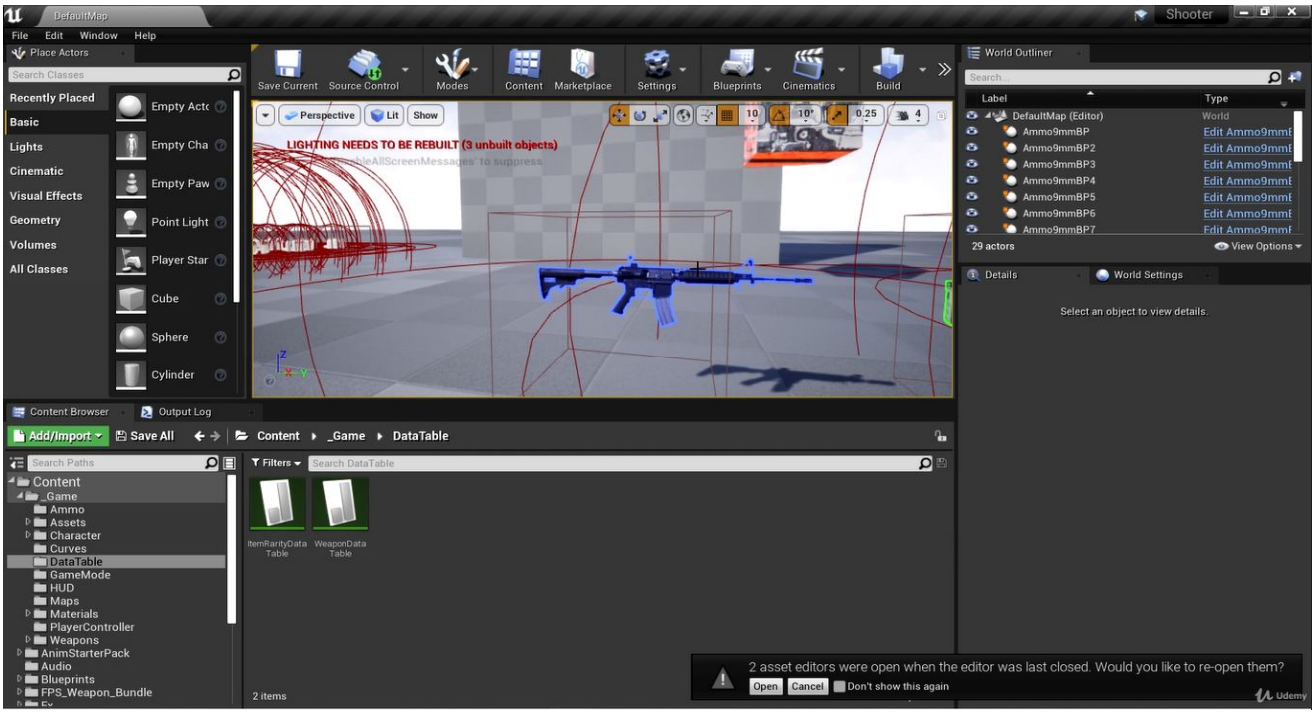


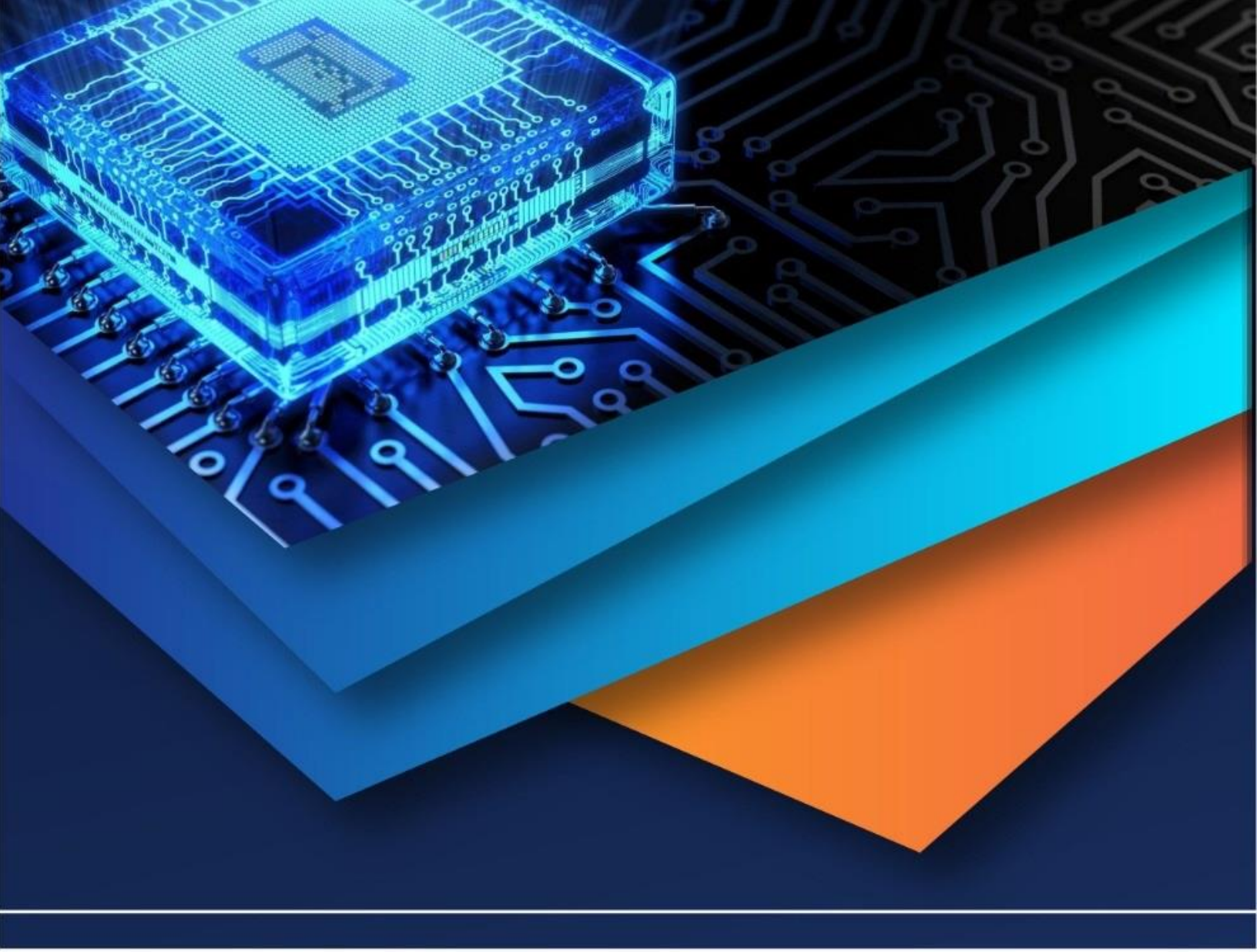
Fig. Guns

VII. CONCLUSION

We conclude that this paper helped us gain more knowledge about videos games and shooting game genre by researching. The impact it can have on people (in both good and negative ways) also how people enjoy playing these video games which can help in reducing stress. The methods to make the shooting video games more effective which gives a feeling of satisfaction of completing tasks and surviving through the game.

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