A 3D Storyline Using Unity Game Engine

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***Abstract*—Within the modern technological era, there is a growing desire for video games with compelling narratives and storylines. The popularity of e-sports has grown, and many players have found success in streaming and tournaments. With an upsurge in expansive user base, the gaming industry is taking off in wonderfulness, drawing in major innovation powerhouses to compete within the commercial center. This paper discusses a single-player game with an Indian folklore story. The purpose of this paper is to pique children's and teenagers' interest in Indian culture by portraying it as a video game. Video games are played or have been played by more than a 90percent of children, according to the study. If used correctly, it has the potential to be an extremely powerful method of disseminating information. This enables us to develop a Mahabharata-themed video game that will pique gamers' interest in the epic story. It's a fun game designed for operating systems like Windows. A player can learn about Indian mythology and respond to the game's difficulties while playing the shooter game. Unity3D software is essential for creating unique and entertaining games, as well as creating responsive video games and providing a more visual world[4]. A Computer program like Unity3D employments inventive approaches to game advancement. The Unity engine provides a comprehensive solution with interactive media installation features. It serves an important purpose in game development. Unity3D makes use of OpenGL to render 3D graphics[2][6].**

Blender is a 3D rendering and animation program widely used by professional artists to create animations, visual effects, 3D prints, interactive 3D applications, etc[2]. Although the Unity Engine and frameworks play an important role in the development process, they are not the only factors. Game creation frameworks include graphical user interfaces (GUIs) such as a level editor, script editor, sound editor, and material editor [8] that aid in the separation of functions. Blender allows users to create flexible models by providing 3D modeling, texturing, graphics editing, animating, match moving, rendering, motion graphics, video editing, and compositing. During the development of this game, Unity3D was used for the interactive game interface, while Blender software was used to create 3D characters.

***Index Terms*—Unity3D, Blender, Photoshop, Audition tool, After Effects tool**

I. INTRODUCTION

Storyline A game in which one or more players collaborate to tell a spontaneous story. A storytelling activity is a social or cultural activity where stories are shared. Every culture has its own story that is told for entertainment purposes. Some stories are told to increase educational knowledge, cultural inheritance, or to instill moral worth. The plot, characters, and narrative point of view are all important components of stories and storytelling. A new generation of emerging technologies has made gaming a profitable industry over the past few years. Computer games have quickly gained popularity among children as a popular or well-liked form of entertainment. There are six stages within the game development life cycle: start, pre-production, generation, alpha-testing, beta-testing, and release, which productively aids within the advancement process [1]. A storyline game is one where the players compete together to create a narrative. Storytelling and narrative, as well as realistic graphics and even gameplay, are fundamental. By simulating being in the real world, storyline games allow the player to feel more immersed in the game. Hundreds of adventure games were available at one time, but today's new generation of 3D games is making a significant contribution to the industry. This storyline was linked to the development of mythological concepts, oral narratives, and puzzles. This project is about a one-of-a-kind storyline based on an Indian legend known as the Mahabharata. The basic game hierarchy includes an entire game with multiple scenes and multiple game objects[9]. The player is completely immersed in the experience, meeting the main character and sharing his or her setbacks. This game was designed in a three-dimensional format. This type of historical video game provides learning potential for specific purposes such as learning about events or details in history[5]. This means that your entire game will be played in the first person with a 3D interface. An incredibly challenging strategic game with numerous stages where the main character must overcome numerous obstacles and solve numerous puzzles to make it further in the game. The level design should be approached correctly. It begins with the creation of content or concepts for the game area, followed by the modeling and texturing of the terrain, and then provides ultra 3D effects using Maya software, which produces a realistic effect[10]. All of the puzzles are intricately linked to major events in the Mahabharata legend. Players assume the role of the main character and attempt to accomplish their objectives in a virtual game environment. [11]

As a result, this is one of the most effective methods of introducing the younger generation to Indian culture. The key objectives addressed are as follows:
1)Develop an Indian-themed video game.
2)Introduce Indian culture to young people.

II. RESEARCH METHODOLOGY

Players are drawn into an intriguing world through interactive storytelling. The first step in creating that

environment is to make your narrative more engaging so that players and the game can connect. An interface can be found in a variety of mechanisms, such as mini-levels, story puzzles, and so on. We examined online comments and reviews for a variety of video games to better understand how young people connect with video games and why historical features should be prioritized. Today's younger generation is more interested in downloading and purchasing a large number of video games.

It was the perfect way to actualize our concept that is to utilize a first-person shooter. As opposed to most first-person shooter games, the concept we developed will provide a unique experience. We looked at mythical-themed action-adventure games like Raji: An Ancient Epic, which starts with a new battle between demons and gods. We also used a similar concept to accomplish the goals of the Mahabharata story. A player can learn about the majority of Indian mythology topics by interacting with the learning mechanism. To advance from one level to another, the player must fulfill the tasks appointed to him. The term game development refers to the process of designing, developing, and releasing a game behind the scenes to make the game look amazing and operate effectively while providing a smooth user experience. We hope that by taking this approach, we will be able to provide gamers with a historical experience that both entertains and educates them.

III. DEVELOPMENT PROCESS OF 3D GAMING APPLICATION

A. *Design Implementation*

The levels were sketched out using the Unity 3D computer program. Step 1: The first step is to choose a template: Depending on prerequisites, the template or format can be customized. Furthermore, this template includes pre-selected options. It speeds up the initial project preparation process.

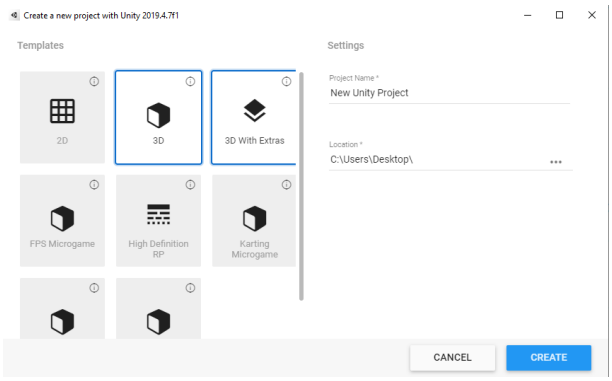

Fig. 1. An image of a template

Step 2: Step 2: Create a new scene based on the previous scene's dialogue:

To manipulate the template, a developer must begin with the creation of a new scene, after which Unity will open a sample scene with only a Camera. The camera gives the developer the ability to see a picture of a particular point within the scene.

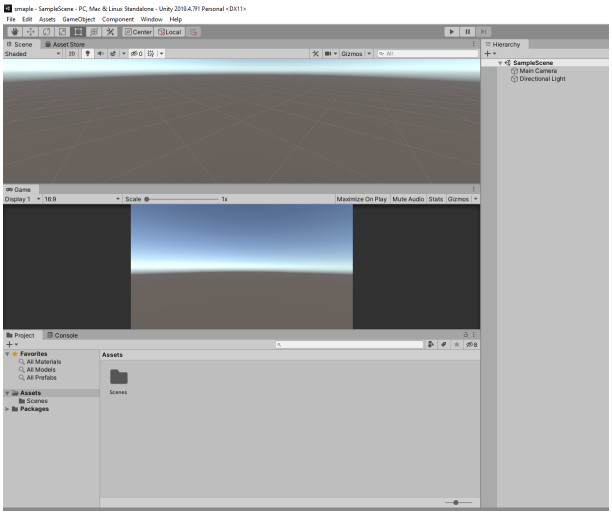

Fig. 2. An image of a new scene

Step 3: Layout the terrain:

The primary step is to select a 3D Game Object to add a terrain game object to the scene. After choosing a 3D game object, go ahead and select Terrain. The terrain inspector window has some features that assist the user in designing perfect terrain. The terrain attribute in Unity3D can be used to create terrain based on the developer's specifications. [3]

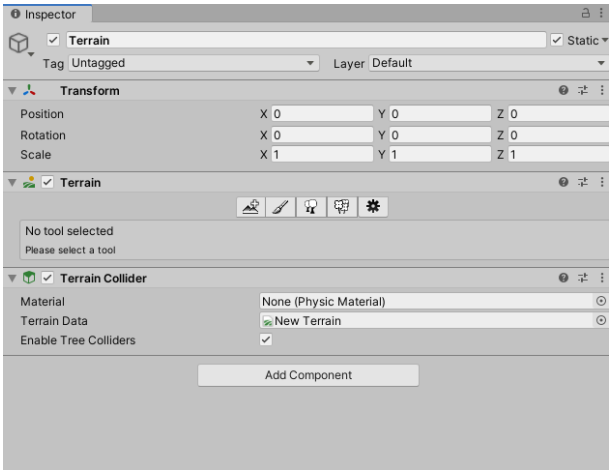

Fig. 3. An image of a terrain inspector

Step 4: This includes toolbars for editing the terrain. This enhances the responsiveness of the terrain by having several features.

1. Layout terrain tiles. 2. Design and paint terrain. 3. Add trees and fogs. 4. Then the Details or objects such as grass, a river, and flowers should be included.

4: Building a neighboring terrain: This is done so that the adjacent terrain tiles can be completed quickly.
To do so, go to the terrain toolbar and select Create neighbor terrain.

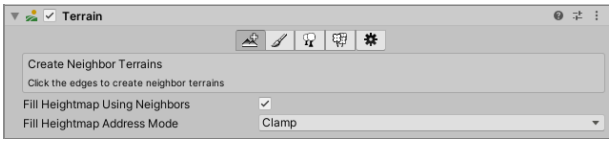

Fig. 4. An image of a neighbor terrain inspector

B. Result

After accessing these features, the ultimate diagram of the terrain can be seen, which is appeared below.

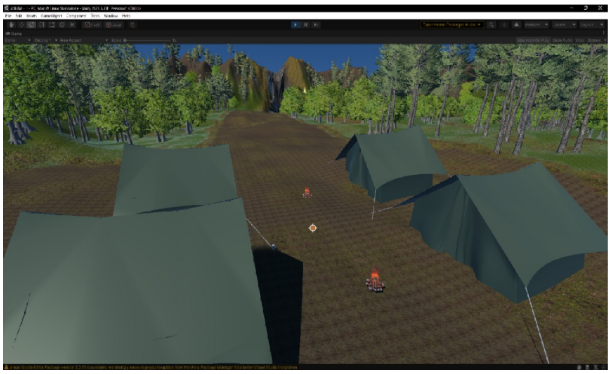

Fig. 5. An image of a terrain

This is how the level design was carried out.
Significantly, the player completes all of the levels to win.

C. 3D Character Designing

The character design is divided into six sections..
Part 1:Drawing Preparation:
The complete process starts along with your creation of a character. To accomplish this, we will use Blender's Grease Pencil tool to create the initial sketch. Developer should have a front and a back view. The toggle Quad View alternative permits developer to isolate the screen into four areas, with a character model situated where they need it within the x, y, z-planes based on the sides, beat, and bottom of each segment. The next step is to import a file containing the 2D drawing into Blender and use this imported file to set each background picture of the cube as one of the character outlines.
Part 2: Shape Insertion:
Open edit mode and eject the cube to create a basic shape that matches your background image. This step allows developer to divide the character into parts, which will help them refine it individually. To enlarge the details, divide them into new layers, work with them, and then layer them back under their original area. After dividing the character's background image into cubes, subdivide the cubes into shapes that best fit the outline of the drawing.
Part 3: Using Layers:
Creating new layers that are copies of existing ones allows developer to move the outlines of layers to reflect how clothes and other coverings cover the character. As a result, It is not required to begin at the beginning.
Part 4: Texturing the model:
Developers will have a 3D character demonstrate all one smooth color by including a sub-surf modifier under the modifiers heading. The texture paint tool is also available. Include a new paint slot to the tool shelf first, followed by adding a new shading type texture to the texture panel.
Part 5: Rigging Model for Animation:
Create a model skeleton. In object mode, join the mesh and rigging model. And for animation, move parts of the model to create the appropriate pose and keyframe it for each frame of animation.
Part 6: Rendering the Character:
The final and most important step in character processing is to render the character in order to bring out the most realistic details.

IV. EXPERIMENT RESULT

This project is entirely application-based As the player propels through the levels they must unravel puzzles/mysteries to develop through the game The clues to the puzzles/mysteries would be shown through parts of the Mahabharata by transporting the character to the past and reliving some scenes from the Mahabharata.

V. SCOPE

The goal of this game is to create an engrossing playing environment with high-quality graphics. This is a single-player strategy game that you can play on a computer. The player will progress through several stages. This game has been structured to aid in the progression of the story. The primary focus will be on the story, levels, objects, animation, visuals, scripting, and gaming engine tools. This game will be primarily used in the gaming industry to provide a fun experience. This can be used to make the game more enjoyable for people of all ages, with a focus on children.

VI. DISCUSSION

As a part of the development process, an extensive explanation must be included. It was completely begun with picking a game idea which ought to be appealing game concept and Provide user with a suitable stage where the game can be played.As a another step, a point by point portrayal of all the

game components was to be included in a game plan report. Besides, it'll contain data with respect to the game mechanics as well as the software and technology that will be utilized for development. Having decided plan records, the another step was to consider the game structure which incorporates design, environment, surface, and other objects. These are all factors that make a developer have a better understanding of how game works and the way the application feels.

VII. CONCLUSION

This project's goal is to create a game architecture that provides a learning outcome while also allowing for emergent interaction between the game and the player. In this paper, a storytelling game similar to Raji: An Ancient Epic was created with Unity3D software, complete with high-quality visuals and animation created with After Effects and the Audition Tool. Blender was utilized for creating the 3D models. Traditional board games and other forms of entertainment are not nearly as engrossing and fascinating as video games. Through the player's active involvement in the medium increases the level of satisfaction he or she derives from it, becoming more involved in the aspects of the game and more willing to participate. Games have significant effects on players based on the time they spend playing them. While excessive gaming can be harmful, moderate gaming can be beneficial, enjoyable, participatory, and, most importantly, educational. Not only do young people enjoy playing games, but they also enjoy creating them. As a result, the next generation of instructional gaming will be produced by the same generation that grew up with video games. Individuals who are interested in video games will have a good time as a result of this comprehensive synergy between education and digital gaming. In addition, with our game, we attempted to accomplish nearly everything listed above, so that anyone who played it, whether children or adults, would have interactive entertainment while also learning something about Hindu mythology or culture.

VIII. ACKNOWLEDGMENT

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