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3D Game Development Using Unity Engine

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ABSTRACT: The goal of this project is to explain how video games are developed. How different game mechanics work and how to use them in the development of a game are explained. This project looks at how games in general are developed using Unity game engine which has become not only popular but a standard in the gaming industry. It demonstrates how a few of these games were made in Unity and deployed. In this project Visual Studio is used to develop programs. Unity engine and Visual studio are the useful software which give broad aspects to our vision in developing games. Unity apps are primarily developed in C#. The domain of this project is Unity C#. In this Project, with slight use of Animation, Visual effects we have developed a 3D game model. The game is included with sound effects and belongs to combat flight simulator genre. Named it "DOGFIGHT".

KEYWORDS: Unity Engine, C#, 3D game model.

I. INTRODUCTION

Some time ago, if you wanted to make a video game, then you at least needed to know how to write code. You had to figure out how to program everything from player input to graphics rendering. Suffice it to say, you had to know a lot about programming in order to begin thinking about making your own game.

Thankfully, times have changed, and some companies have set out to remove many of the boundaries of video game development of game engine like Unity. With the creation of these game engines, budding game developers no longer need to figure out how to program their own physics and animation. These game engines provide the tools necessary to begin working on your dream game without needing to spend hours learning how to build your own engine from the ground up. That option still exists for those who want it, but for many the allure of getting straight into game development overrides the desire to make your own engine scratch. Engine such as Unity allow those who lack some of the more advanced programming skills to still create the game they envision in their minds.

II. RELATED WORK

Sams Teach Yourself Unity Game Development in 24 Hours, Ben Tristem, Mike Gieg. In this paper, all the basics of Unity are covered in this comprehensive guide to the software. Sams Teach Yourself Unity Game Development in 24 Hours explains the Unity UI from start to finish including menus, workflows, and final production pipeline assets used in pro game studios. The book does not cover much about C# but it's also not a book strictly made for C# development. The Guerrilla Guide to Game Code, Jorrit Rouwe. There are a lot of articles about particular aspects of a game. However very little is written on the subject such as the binding structure that ties all aspects of the game together. Choosing a structure to build your game on is important. The paper suggests use of a Model-View-Controller mechanism for development purpose. The Model View Controller mechanism fits nicely with other often used techniques like making a deterministic game. Model View-Controller architecture is also really good at is online multiplayer. A good structure will reduce risk and increase the efficiency of the team. Unity in Action: Multiplatform Game development in C# with unity 5, Joseph Hocking. Unity in Action covers the Unity framework in detail using C# as the programming language as a guide. This paper explains about Unity, how to work in 3D space, adding enemies and projectiles and developing graphics to the game. C# Unity game developer 3D, Rick Davidson, Ben Tristem. In this author explains how a game can be developed using Unity engine. Author describes all the features that Unity provides for a game to develop such particle systems, colliders, scripts, audio source. In this project all these features are used. This tutorial provides all the basics needed for game development. Explain how Timelines and Animation work the game objects C#

Unity Game Developer 2D, Rick Davidson, Ben Tristem. This tutorial explains how games are developed in 2D. It can explain about canvas which is the screen of a game we see where UI is displayed. Prefabs and all UI canvas related things are well explained here.

III. METHODOLOGY

At first we need to create a 3D project from the Unity hub. Then, enter the project to start developing. Here in this project, from the asset store download all the assets that are required for game. After downloading them, we should import the assets to project from the package manager. Whatever we download from the Asset store, we need to import them. This importing work will be done by package manager. All these downloaded assets will be saved in project window. By clicking right mouse button on the hierarchy, we find terrain, select terrain. Then we find terrain is created in the scene window. Using the terrain tools, start building the terrains as we need. In our project, using terrains, we created desert, mountains. Raise and Lower terrain tool is used very often in the project as it makes the terrain up and down. After that we need to apply a texture that suits the terrain. All the texture in the project are brought from the asset store. After that, we need to work on the environment i.e., trees, grass etc. Apply suitable skybox to the skybox. Now, we need to bring the player into the world. Add whatever components, scripts are required to be added to the player. In this project we created a game object called "player thing", to this our player and the camera are added which are considered as children to the game object. Camera is also attached because, if the player moves then camera also moves accordingly. Later, Create a timeline for the player. After all these bring the enemies to the world and add necessary components and scripts to the enemy. Create timeline for enemy. Each enemy should have unique timeline path so that games would be interesting. After all these, we need to work with UI (User Interface). Creating pause button and player health and lot more comes under UI. Completing this work, we need to build the scenes. Without build support game cannot run on any pc.

IV. EXPERIMENTAL RESULTS



Fig.1 level 1 game design.

This level geographical features represents Thar desert. Player need to fire enemies to survive.



Fig.2 DogFight wallpaper and first screen

Clicking on start button, player enters into game. Quit to quit the game.

V. CONCLUSION

Developing games is a quite difficult and lengthy process without proper planning and execution .Working on the project not only helped me acquire knowledge about the Unity game engine and game development, but also about programming. As I was able to gain in-depth ideas about the game making and programming which I would not have come through during normal day to day practice. The game developed was for learning purposes and to introduce the latest features in Unity3D. This project will be developed further and improved in the future. With a suitable game engine and a bit of knowledge about programming, it is possible to create games. Even though there are many game engines, each having its own perks and features. At the end it all comes down to individual choices, on which game engine to work on as every game engine serves for the same purpose. Over the last few years, Unity has developed a lot and now includes many more features for 3D game development. The Unity game engine has seen significant changes and with its growing popularity more developers have chosen it over other engines, mainly because of its simpler user interface. It is important to acquire knowledge in hopes of creating more complicated and wonderful games, but in a simple way.

REFERENCES

- [1] Wikipedia. Unity game engine
- [2] Official Unity user manual 2020.3.
- [3] C# Unity game developer 3D, Udemy.
- [4] C# Unity game developer 2D, Udemy.



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