VIDEO GAME IMPLEMENTATION IN UNREAL ENGINE 4

LITERATURE REVIEW

SOFTWARE ENGINEERING GROUP 5:

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LITERATURE REVIEW

ABSTRACT:

The project under creation is to provide a gaming revolution in Pakistan. Video game industry is one of the highest grossing sectors in the technological field. With the development of a game project, the aim is to motivate the aspiring game developers working on minor Indie game projects, to take a major step and work on a major game title and this may lead to introduction of several game development teams and development studios. We use one of the most powerful game engine Unreal Engine 4, which is the current version of the Unreal Game Engine series by Epic Games. With Unreal engine we use employ several powerful softwares such Autodesk Maya, Zbrush and Gimp. The game is a third-person shooter video game which goes on par with the graphically advanced games being released on current generation of the gaming consoles (Play Station 4 and Xbox One). With the project under incremental development and facing major changes and being continuously updated, upon release, it is certain to create the identity of Pakistan Game Industry in the international entertainment market and compete with other current generation advance game titles.

INTRODUCTION:

The golden age of video gaming begin in mid 2000's with the release of 6th generation consoles such as Play Station 2, Xbox and Game cube, 7th generation consoles (Play Station 3 and Xbox 360). Since then the video game market has been one of the dominating field of the technology industry. From the release of Play station and Nintendo 64, the graphics in video game went through a major evolution with the introduction of 3d gaming. The eye candy graphics running on ever evolving graphic cards have served as a major attraction factor for the majority of gaming enthusiast children and adults alike. The current generation as referred in the gaming timeline is the eight generation with powerful consoles such as Play Station 4, Xbox One and Wii U.

LITERATURE REVIEW:

In the project under creation, we aim to create a game title for these current generation consoles and for that make the use of the powerful Unreal Engine 4. Unreal Engine 4 is the latest and current version of the unreal game engine series by Epic games which are used specifically for creating graphically high end titles which run on the powerful eight generation consoles. The game "HYSTERIA" is thus a graphically moderate game that goes on par with the current gaming titles.

ABOUT 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 primarily developed for first-person shooters, it has been successfully used in a variety of other genres, including stealth, MMORPGs, and other RPGs. With its code written in C++, the Unreal Engine features a high degree of portability and is a tool used by many game developers today.

The current release is Unreal Engine 4, designed for Microsoft's DirectX 11 and 12. Platforms that support Unreal Engine 4 are:

- For Microsoft Windows, Xbox One, Windows RT).
- GNM (for PlayStation 4).
- OpenGL (for macOS, Linux, iOS, Android, and Windows XP).
- Vulkan (for Android).
- Metal (for iOS).
- JavaScript/WebGL (for HTML5 web browsers)

ABOUT BLENDER:

Blender is a professional, free and open-source 3D computer graphics software toolset used for creating animated films, visual effects, art, 3D printed models, interactive 3D applications and video games. Blender's features include 3D modeling, UV unwrapping, texturing, raster graphics editing, rigging and skinning, fluid and smoke simulation, particle simulation, soft body simulation, sculpting, animating, match moving, camera tracking, rendering, motion graphics, video editing and compositing. It further features an integrated game engine.

ABOUT ZBRUSH:

Zbrush combines 3D/2.5D modeling, texturing and painting. It uses a proprietary "pixol" technology (see below) which stores lighting, color, material, and depth information for all objects on the screen. The main difference between Z Brush and more traditional modeling packages is that it is more akin to sculpting.

ZBrush is used for creating high-resolution models (able to reach 40+ million polygons) for use in movies, games, and animations, by companies ranging from ILM to Electronic Arts. ZBrush uses dynamic levels of resolution to allow sculptors to make global or local changes to their models. ZBrush is most known for being able to sculpt medium to high frequency details that were traditionally painted in bump maps. The resulting mesh details can then be exported as normal maps to be used on a low poly version of that same model.

METHODOLOGY:

Like traditional game development, it all starts with a concept. The genre of the game title “HYSTERIA” is an action adventure. It relies heavily on gun-fights between players and AI programmed enemies. With accordance to the concept art, the certain aspects of the game environments, player models enemies models and objects are modelled and sculpted using blender and zbrush. When ready the elements are imported into unreal engine which serves as the core backbone. Then then we use the unreal’s blueprint technology functionalities of the unreal engine to assign certain connection and loops between the elements and aspects.

For example we render the environment so that the player character may walk and run on it and assign functions that the gun modelled in blender appears perfectly in the players hands, the player is able to fire projectiles from the gun, the projectiles cause the enemy health to decrease using loops, enemy character has a certain vision in which when the player character appears the enemies attack them.

RESULTS:

When all the functionalities are applied and synchronized in an orderly manner for each element, a proper storyline is given, a dynamic gaming environment is created in which, the eye candy graphics visual appeals the player and creates a

sense of challenge in them and motivates them to play the game and see it to the end.

DISCUSSION:

When perfected, the game will be released in the local as well as the international market and will be available to download of the STEAM platform for a price that accommodates with the budget.

CONCLUSION:

With the release of one of the first major studio game title from Pakistan, an era of gaming revolution is to be inspired. Many of the indie-game developers will be inspired to create creative major game titles in advanced game engines such as Unreal Engine and Cry Engine and the development of Pakistani game studios own game engine will become in-evitable and this may lead to major gaming revenue to be generated within Pakistan.

REFERENCES:

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