

# Adventure Island Using Unity Engine

Mrs. Revathi M<sup>1</sup>, Thirumaran P<sup>2</sup>, Vishnu Ram M<sup>3</sup>, Sankaran R<sup>4</sup>

<sup>2,3,4</sup>UG Student, Department of CSE, Agni College of Technology, Chennai

<sup>1</sup>Assistant Professor, Department of CSE, Agni College of Technology, Chennai

**Abstract - In this paper we design a single player strategy game emphasizing logical thinking and planning they often help in stress, resources, and time management. It usually takes precedence over past action and character involvement. Here the execution is necessary where the game creator usually plays the decision-making skills and delivery of commands in the player hands. This is a complete strategy game with different levels developed with the help of Unity3D.**

**Index Terms - Unity 3D**

## INTRODUCTION

The computer gaming industry has grown by many leaps and bounds of its development, becoming a mainstream software development sector, and earning billions of dollars revenue each year. The gaming industry has also been one of the main driving forces behind the development of advanced modern hardware such as multi-core, hyper threaded processors, high performance graphics processing units (GPUs), advanced sound processing devices, and extraordinary human computer interface devices such as virtual reality helmets and brain sensor caps.

In this paper we displayed our output in creating a game based on the Unity game engine and related software such as blender. We want to use this more visual, more easily accepted medium to depict the world through which we can educate the people.

In the fast-growing field of software engineering and development and even more the rapidly growing sector of game development the future is hard to predict. We choose this type of work for doing graphics, scripting, and adopting new technology animation. But here comes the point a game is much more than this software. It has to provide the content to become enjoyable. The environment of the game involves the story, character, gameplay, and the artwork.

This game engine is an integrated development tool used to develop interactive contents like real time gameplay experience, visualization, and 3D animations. Its editor runs on various platforms like Windows and Mac OS X platforms. though it runs on only two platforms, it has the ability of developing applications for multiple platforms which are mentioned as follows – Windows, Windows Phone, Mac OS X, iOS, Linux, Android, Web Player, etc.

The game engines were the software tools for the game development. Unity provides lot of tools for the game developers to customize every small detail of the game. The other advantage is that the already developed game engines are being helpful to the developers so the little things need not to be change every small thing where he can import them from the engine. Some examples like unity can offer components for sprite rendering, physics, and sound. Unity also provides an assets store where the game developer can get free or paid premade tools to help the developer to develop the game, respectively.

We choose unity because it is beginner friendly, and it is completely free when it is compared to other counterparts. There are also some free popular game engines are Game maker, unreal engines and cocos 2D.

## PROPOSED SYSTEM

In order to develop the game, the platform to create is essential. So, we used the platform such as unity, blender, and programming language C# respectively.

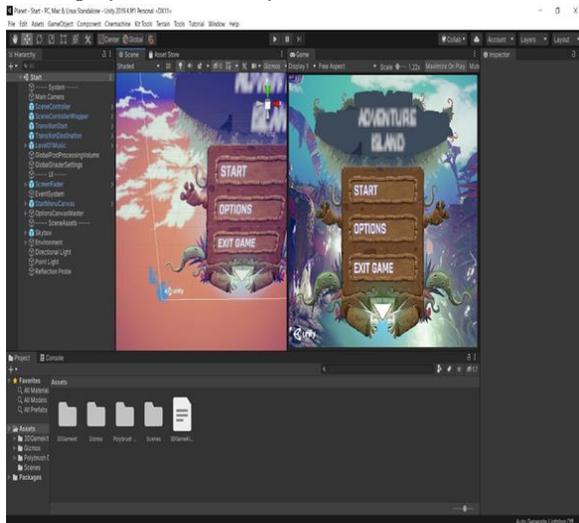
## UNITY

The Unity engine was introduced by Unity Technologies in 2005 and become one of the most popular platforms for developing 3D games. It has been very helpful for both by third party developers and by large commercial game development companies. The functions that are supported by

Unity3D are very abundant. Unity3D produces the applications based on JavaScript and/or C#. These are used to assign the animation or real-time transition of the Game-Objects defined in the application. The Graphical user interface helps the new developer to approach in an easy way and script and program the transition of the Game-Object. The latest version of unity is Unity 5, which is composed of full functional game engine, with advanced features enabled by default and it is freely available to developers.

Unity is a real time game development platform where we can build games for both PC and mobile application, respectively. A real time 3d game can be developed with the help of this software. It is a cross-platform engine developed by unity technologies. The engine is found that it can run and support more than 25 platforms.

Unity is an integrated environment, which combines a number of sophisticated components such as the PhysX physics engine, the Mechanism animation system, a self-contained terrain editor and much more. It is integrated with the Mono develop code editor, so that any changes made in Mono develop are transparently compiled by Unity's Java script or c# compilers and inserted into game. Compilation errors are displayed in the Unity console window.



### BLENDER

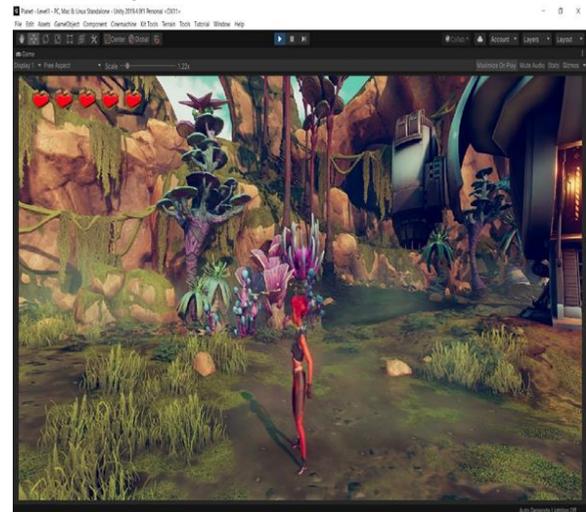
Blender is an open-source 3D and free computer graphics toolset. Blender is useful for creating visual effects, animations, interactive 3D applications, virtual reality, art, 3D printed models, motion graphics.

Blender is a modeling and animation software studio. It comes with a quite advanced and efficient game engine and integrates the Bullet physics library<sup>5</sup>. Through it consists of Python interpreter, the game engine is wide open for implementing real-time interaction of external control software with the game engine logic. The game physics may be utilized whenever some mechanical part is under uncontrolled motion, like sliding or falling.

It is the full support for the 3D pipeline such as simulation, modeling, animation, and rigging. The main advantage over the blender is works equally well on Linux, Windows, and Mac Operating system.

Blender has a lot of advanced features, but important ones for us is they are the non-destructive modeling tools and easily approachable. The real-time viewport is seen when it comes to evaluating text. It has constant updates and development cycle, and they are so transparent about their development process.

Blenders' data management content is helpful in providing the flexibility. It allows any data to be stored inside the file. Custom properties may be stored on scenes, objects, meshes, collections, etc. Custom



properties may hold basically any data such as string, float, list, dictionaries, and more.

### NON-PLAYABLE CHARACTERS (NPC)

In every pc gaming the gaming developers will choose the non-playable characters for the purpose of adventure and giving the high-level excitement for the user. These NPC characters deployed which is not controlled by the players whereas all the NPC characters have the predetermined behavior which is

monitored by the computer with the help of Artificial Intelligence.

The Non-Playable Characters which are used for the purpose were

- 1.The storyline of the gameplay will be extended
- 2.The NPC will act as an assistance or the partner to the gamers
- 3.The friendly or enemy character are serving as a life or the health regeneration point.

These NPC characters will interact with the player throughout the game. The interaction between them will generally be the conversations. For example, the enemy conversation includes the units of NPC characters which will make bombing, blasting, slashing and sniping. These speaking characters all are generally controlled by the game. Many developers will keep the NPC characters as friendly one, but changes depend upon the gameplay. Despite their advantage the NPC also hold some negative side such as they do not achieve the level of believability, in the social arena. This may result over the misunderstanding of the role of NPC, which may result in the failure believability in game. Hence the NPC will differ over different gamers based on their expectations.

The NPC character's role is very important because these NPC characters which is seen once must be resumed over at every gameplay in full campaign. So, these works are carried out by the Game Masters (GM). The Game Masters will identify every minor change in the game and remove all the error or bug one and holding the good NPC. These NPC characters are differing to players where some players will expect the NPC throughout their gameplay while others focus only on their needs. But in general, these NPC are fun players where they also communicate to the other characters also.

#### PLAYABILITY

In some gamers the developers will provide the option to the gamers like the other gamer in the same system can take the control of the NPC respectively. The reason for this may vary but in order to deliver the best experience this option is kept (for example the NPC may get injured). Although all the NPC characters are controlled by the game master's sometimes the temporary provision are given to the players to control the non-playable characters which holds the other

perspective of the game. These rules are always encouraged by the players respectively.

#### DEPENDENTS

Many gameplays will have rules for the characters to follow the NPC or any other dependents based on the PC. These characters are very useful in the development of the NPC respectively.

In some NPC characters their behavior also set like the human and in more complex games the players are given advantage to take control of the NPC like they can change the behavior of the NPC apart from the Game master respectively.

There are also some gameplays in which the NPC are totally controlled by the employees of the game company. They also provide a feature in which if a gamer felt any issue over the NPC character, then he can raise the issue and the developers will sort the things, respectively. In other cases, the live NPC were also placed in which they play as a regular character in order to continue the story line, respectively.

#### ARTIFICIAL INTELLIGENCE

AI this used in the gaming for the purpose of adaptive and responsive video gaming experience. It is generally deployed over the Non-playable Characters (NPC) which acts intelligently and creatively. This engine is responsible for the role of NPC in the gaming, respectively. There is another interesting field over it namely the AI procedural generation which is also called as procedural storytelling where the game data can be produced algorithmically rather than the developer building every aspect.

From the earlier stages in the field of gaming the developers were programming the software which is not only based on reality but also designing a virtual world with a high-level of gaming experience with the help of AI. But we cannot come to the point that the different games which are played today are developed with modern AI, rather than focus on the way the developer needs to deliver his gaming idea on projections of his ideas with a set of levels leads to the emergent gameplay. For example, the games such as Rockstar hyper-realistic dead Redemption 2, which makes the player to interact with the NPC characters which is placed inside the game, holding the reactions of the NPC (NON-PLAYABLE CHARACTERS)

which is placed inside the game, the reaction of the NPC based on the action of the player which is the great thing to be noted for the good gameplay.

The aim of the AI which is used to make a reality in the gameplay instead of focusing on the regular outcome, this is the main thing that every gaming software developers will think during their view. By achieving the reality in the gaming which leads to the stimulation of players to the greater experience from the virtual world to the real world like experience respectively. Yet only 50% of the AI placed on it. The other 50% of the AI is worked along the idea which rest on the psychology where how the player responds to the game machine and the developed technology. Through this we can expect in future that the AI will play a major role in the gaming industry which makes the complexity of the reality into the simpler one respectively.

#### CONCLUSION

This study gives the clear understanding on design and development of a gaming application using unity game engine. A real-time gaming is built using unity 3D with the high-level user experience and to ensure the excitement during the gameplay a good quality animation is placed. Several levels are placed over the game so that the difficulty in each level of gaming is change along with the levels respectively. Through this gaming we have placed our views and our thoughts in the gameplay. A synchronization in animation, video and audio is ensured for a good delivery so that the level of the gaming have great exposure during the gameplay. The functions that Unity3D supports are more than the expected. All game developments are possible here with physics engine, network, terrain manipulation, audio, video, and animation, and it is enabled so that it is possible to revise, meeting demand of user according to the need.

#### REFERENCE

- [1] <https://docs.unity3d.com/ScriptReference> (Unity)
- [2] <https://docs.blender.org/manual/en/latest> (Blender reference)
- [3] <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference> (C# reference).
- [4] [http://seriousgamesnet.eu/mod/elgg\\_segan\\_framework/static/conferences/2013/presentations/10\\_](http://seriousgamesnet.eu/mod/elgg_segan_framework/static/conferences/2013/presentations/10_)

- Game\_Development\_Using\_Unity\_David\_Gouveia.pdf
- [5] [http://ds.nashobmen.org/fo/get/2655976/Packt\\_Unity\\_Game\\_Development\\_Essentials\\_2009-wapdisk\\_ru.pdf](http://ds.nashobmen.org/fo/get/2655976/Packt_Unity_Game_Development_Essentials_2009-wapdisk_ru.pdf)
- [6] Oswald Comber;Renate Motschnig;Hubert Mayer;David Haselberger. "Engaging Students in Computer Science Education through Game Development with Unity,2019
- [7] Mateo And Tihomir orehovacki "Measuring Quality of An Indie Game Developed Using Unity Engine"2019.
- [8] Halima Banu S and S Chitrakala," Trending Topic Analysis Using Novel Sub Topic Detection Model",2016,Department of Computer Science and Engineering, Anna University, Chennai, Tamil Nadu, India
- [9] I. Ketata, W. Sofka, and C. Grimpe, "The role of internal capabilities and firms' environment for sustainable innovation: Evidence for Germany," R&D Manage., vol. 45, no. 1, pp. 60–75, 2015
- [10] M. Claypool and K. Claypool, "Perspectives, Frame Rates and Resolutions: It's all in the Game," in Proceedings of Foundations of Digital Games (FDG), FL, USA, Apr. 2009
- [11] A. Broager, "JPEG Encoder Source for Unity in C#," [goo.gl/FwOfOW](http://goo.gl/FwOfOW), accessed 06-May-2014.
- [12] <http://trcf52.okstate.edu/GPU/u3d-tut-1.pdf>
- [13] [https://www.theseus.fi/bitstream/handle/10024/68068/Dansie\\_Jason.pdf?sequence=1&isAllowed=y](https://www.theseus.fi/bitstream/handle/10024/68068/Dansie_Jason.pdf?sequence=1&isAllowed=y)
- [14] <https://en.wikipedia.org/wiki/Subnautica>