



CUBE RUN 3D DEVELOPMENT USING UNITY GAME ENGINE

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Abstract: In this paper, we are going to provide the design and implementation for the game name Cube run. It is simple game with basic functionality and will work on different operating system. Our project mainly focus on improving the focus of the students. The player can play as long as they are able to escape the obstacle of scenes that are developed with Unity3D Game Engine and Blender.

Index Terms - Unity Game Engine, Blender, Code Run, Education.

I. INTRODUCTION

Game development is always an interesting topic in academic. The computer gaming industry has grown by leaps and bounds, becoming a mainstream software development sector, and earning billions of dollars in revenue annually. The gaming industry has also been one among the most driving forces behind the event of advanced modern hardware like multi-core, hyperthreaded processors, advanced sound processing devices, high-performance graphics processing units (GPUs) and extraordinary human-computer interface devices like brain sensor caps and computer game helmets. Computer games are sort of a book, a movie, or a museum.

In this paper we present our experience in creating a game supported the Unity game engine and promoting improving focus via innovation. We want to use this more visual, more easily accepted medium to improve the focus of people with real time result. Our game is a 3D game where a object escapes obstacles and complete levels. It includes many subgenres that have the commonality of focusing on the escaping the obstacle.

Unity3D Game Engine is an integrated development tool to develop interactive contents like architectural visualization, video games, and real-time 3D animations. Its editor runs on Mac OS X platforms and Windows. though it runs on only two platforms as of now, it has the ability of developing applications for multiple platforms without having to rewrite for each of them. Different platform in which the application can be developed are mentioned as follows – Windows, Mac OS X, iOS, Android, Linux, Web Player, etc. We just need software development kit (SDK) for the development of the application on respective platforms.

II. INTRODUCTION TO UNITY3D

The Unity game engine was introduced by Unity Technologies in 2005, and has since become one among the foremost popular platforms for developing 2D and 3D games. it's been embraced both by small, third party developers and by large commercial game development companies. The functions that are supported by Unity3D are very abundant. Unity3D produces the applications supported JavaScript and/or C#. These are used to assign the animation or real-time transition of the Game-Objects defined within the application. GUI of Unity3D helps a replacement developer to approach easily and script and program the transition of the Game-Object. the newest version, Unity 5, may be a fully functional game engine, with all advanced features enabled and freely available to developers.

Unity is an integrated environment, which mixes variety of sophisticated components like the PhysX physics engine, the Mechanim animation system, a self-contained terrain editor and far more. it's also seamlessly integrated with the Monodevelop code editor, in such a order that any changes made in Monodevelop are transparently compiled by Unity's Javascript or C# compilers, and inserted into game. Compilation errors are displayed in the Unity console window.

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The game engine is predicated upon the JavaScript and C#. Unity's scripting is built on Mono, an open-source implementation of .NET Framework. MonoDevelop is an open-source IDE for Linux, MacOS X and Windows. It supports Boo, C, C++, C#, CIL, D, F#, Java, Oxygene, Python, Vala and VB .NET. Scripts are used to respond to input from the player and arrange events in the are used to respond to input from the player and arrange events in the gameplay to happen when they should. They can also be used to create graphical effects, control the physical behavior of objects or even implement a custom AI system for characters in the game.

Unity also includes the Unity Asset Server – a version control solution for the developer's game assets and scripts. It uses PostgreSQL as a backend, an audio system built on the FMOD library (with ability to playback Ogg Vorbis compressed audio), video playback using the Theora codec, a terrain and vegetation engine (which supports tree bill boarding, Occlusion Culling with Umbra), built-in light mapping and global illumination with Beast, multiplayer networking using RakNet, and built-in pathfinding navigation meshes.

Unity supports deployment to multiple platforms. with platform the game supports. Currently supported platforms include for Windows, Mac, Linux/Steam OS, Unity Web player, Android, Ios, Blakberry 10, Windows Phone 8, Tizen, Windows Store apps, WebGL, PlayStation 3, PlayStation 4, PlayStation Vita, Wii U. Xbox One, Xbox 360, Android TV, Samsung Smart TV, Oculus Rift and Gear VR.

III. BLENDER

Blender is a free and open-source 3D special effects software toolset used for creating animated films, visual effects, art, 3D printed models, motion graphics, interactive 3D applications, computer game , and computer 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, rendering, motion graphics, video editing, and compositing.

Blender makes it possible to perform a wide range of tasks, and it may seem daunting when first trying to grasp the basics. However, with a touch of motivation and therefore the right learning material, it's possible to familiarize yourself with Blender after a couple of hours of practice. Despite everything Blender can do, it remains a tool. Great artists don't create masterpieces by pressing buttons or manipulating brushes, but by learning and practicing subjects like human anatomy, composition, lighting, animation principles, etc.

3D creation software like Blender have another technical complexity and jargon related to the underlying technologies. Terms like UV maps, materials, shaders, meshes, and "subdivs" are the media of the digital artist, and understanding them, even broadly, will help you to use Blender to its best. In a project, developers control over delivery to mobile devices,.

IV. IMPORTING FROM BLENDER TO UNITY

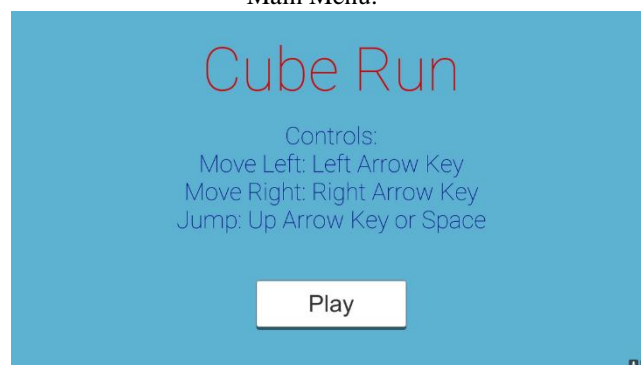
The things that are imported from blender from Unity3D can be largely divided into five parts. First, it is every node that has position, rotation, scale. Second part includes pivot point, names, vertex and meshes with colors. Third, they're normal and one or two UV sets. Fourth, they're diffuse texture and materials with colors. Fifth, they're many materials per mesh, animation, and bone based animations. Unity3D could import FBX file. FBX provides supports for software and applications that are both independent and from certain companies. FBX is employed within entertainment pipeline or as a neighborhood of design production. Files can be sent more smoothly, more data is maintained, and the work flow is more efficient

V. SUMMARY OF THE GAME DEVELOPMENT

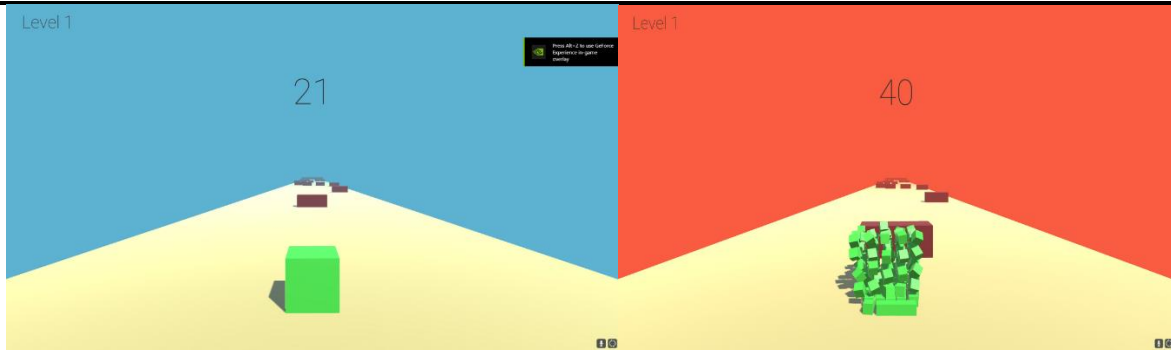
In this research paper

- a) **Game Name:** Cube Run
- b) **Game Genre:** 3D runner, game
- c) **Platform:** Supports Multi-platform (Wiindows PC, An- droid, etc.)
- d) **Game Characteristics:** Our game has levels for the player to travel through. The various scenes depicted in those levels are

Main Menu:



Game Menu



VI. CORE IDEA OF THE GAME

The main objective of our game is to promote game for improving focus. We are using this more visual exercise to change the how people think we can improve our focus. Our game is not just entertainment, it's a medium that is responsible for improving every part of your life by being more aware and focused. It gives the feel of intangible treasure through the environment provided. We found that entertainment and improvement can go in hand to hand and this game is our solution for it.

VII. MODULES

- a) **Game UI screen**
 - i) **Play**
 - ii) **Rules**
 - iii) **Settings**

- b) **Module Description**

- i) **Play:** This module will directly takes the player to the start of the game where the player can start playing the main game. The player initial score will be 0.
- ii) **Rules:** This module display the rules for the game play and also display the controls required for the movement in the game.
- iii) **Settings:** We can use this gestures setting window for setting different movement for the game.

VIII. CONCLUSION

This study aims to design and develop a gaming application using Unity Game Engine. Through this cornerstone for a new concentration on Game Development, we have conveyed our views and ideas on improving focus via entertainment. The functions that Unity3D supports autonomously are very abundant. All game developments are possible such as shader, 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.

IX. REFERENCES

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