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Forest Adventure using Unity 3D Engine

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1. Introduction :

After the introduction of 3D graphic cards in the 1990s reduced the load of the CPU which resulted in better support for other functions. Unity 3D provides the designer with an interface with different types of components and their own animations. It also provides a structure that is easier to write code in. This is why the Unity 3D engine is very popular among game developers

Video games are very useful for recreation and relieving mental stress. Nowadays, video games are following a trend of the battle royale type games; for example, PUBG, Call of Duty, Fortnite, etc. These games don't follow their role of recreational activity and increase stress on the mind.[2]

Other Recreational games like “Mario” are fun to play with multiple obstacles and in-game characters but feels outdated because it only has a 2-D world. This game has multiple movement actions for the player which include moving right, left, and jumping, it also features a power-up where the player gets to shoot fireballs which is another action apart from the movement.

The Current Model of the game is Subway Surfers/Temple Run which is also quite old, has a 3-D world with 3-D obstacles but has only one villain. And the actions of the character are restricted to movement only.

1.1 Unity (Game Engine): is a cross-platform game engine. It supports various desktop, mobile, VR, and console platforms. But it is mostly used for iOS and Android mobile game development. Other uses include Three Dimensional and Two Dimensional games and also interactive simulations. One of the most important features of Unity 3D is its “Physic X” physic engine. Games developed using unity engine include - Plague inc., The Room, Talking Tom, Super Mario Run, etc.

2. Literature Survey:

The Presented game will have a human-controlled character that will evade the autonomous pursuing character created inside the Unity 3D environment. We start by presenting a brief overview of the game object and toolboxes of Unity 3D. We design game fields and every agent with the game object and add some features via a control toolbox[5]. The navigation toolbox creates navigation meshes in the game that are used to provide pursuer agents a certain degree of autonomy. Playing competitive online games is usually fun, but sometimes players feel unpleasant and are stressed regardless of the game's content.[2]

3. Proposed System:

3.1. Problem Statement: Development and Deployment of a 3-D High end interactive video game using the “UNITY REAL-TIME DEVELOPMENT PLATFORM” for android devices. Current Models lack either actions for the character or have a 2-D world implementation.

3.2 Objectives: Our Goal is to overcome the weaknesses of both the models while keeping the strong points to implement and develop the ultimate Runner Adventure Video Game. And launching it on the Google Play Store.

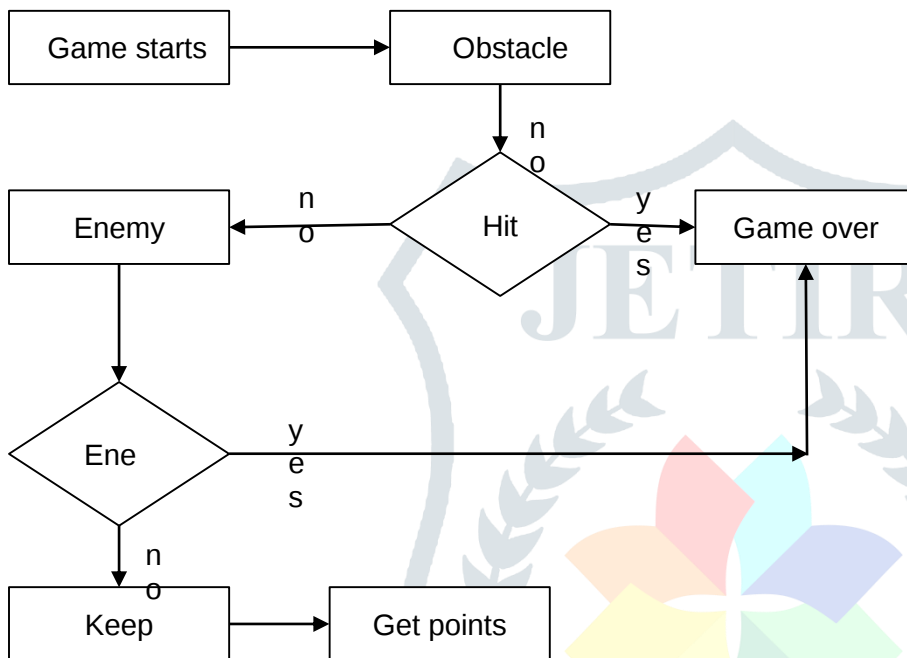
3.3 System Description:

Input: User touch interaction with the screen of the device (Swipes and Taps on the screen)

Output: Character and environment response to respective user action

(Upward swipe: jump

3.4 Flowchart :



3.5 Algorithm and Pseudocode :

Algorithm: The character runs continuously until hit by an obstacle or enemy. The character runs in an environment surrounded by trees and solid objects. Using transpositions and rotations wherever needed for character movement. The enemy is running after the character.

Pseudocode: 1) Creating the characters.

2) Creating a plane beneath.

3) Giving character animations.

4) Creating character behavior.

5) Setting the camera angles

6) Adding character behavior scripts.

7) Adding and designing obstacles.

- 8) Creating the Forest environment.
- 9) Executing the game.
- 10) Build the game using android SDK's

4. Result :

4.1. Accuracy: It has accuracy up to 95 %.

4.2. Storage: It can use up to 100mbs of your android device.

5. Conclusion:

The game lets the user dodge various hurdles of the form like tree roots, walls, rocks, etc. The main player is always running and the game stops when the player gets intercepted by an obstacle or the user terminates the session of the game on their own. The presented game will stimulate and improve cognitive skills. It will also help users develop better attention and focus. Using the Unity 3D engine for developing high-end games such as Forest Runner 3-D is quite convenient.

6. References:

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