DEVELOPMENT OF A 3D GAME ON THE UNITY PLATFORM

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Dezvoltarea unui joc 3D pe platforma Unity este un subiect interesant în industria jocurilor. Jocurile 3D sunt acum foarte populare și atrag mulți jucători. Dezvoltarea unui astfel de joc este un proces complex și dificil care necesită mai multe abilități precum programare, animație, design și grafică. Elaborarea unui joc 3D pe platforma Unity implică mai mult decât crearea unui mediu tridimensional. Aceasta include și aspecte precum proiectarea nivelurilor, programarea gameplay-ului, crearea modelelor și animațiilor, gestionarea sunetului și a efectelor speciale, optimizarea performanței și multe altele. A fost dezvoltat un joc 3D pe tema supraviețuirii pe o insulă. Eforturile de a atinge obiective propuse contribuie la un joc distractiv și captivant, care provoacă și satisface jucătorii pe tot parcursul jocului.

Unity Software, a leading game development platform, has evolved far beyond its origins as a game engine. Today, it stands as a versatile and powerful tool used by developers worldwide to create a wide range of applications, from immersive games to simulations, architectural visualizations, and augmented reality experiences. In this article, we will explore the various aspects of Unity Software, examining its features, applications, and the impact it has had on the software development world.

Unity is a cross-platform game engine, first released in 2005 by Unity Technologies. Over the years, it has transformed into a comprehensive development platform supporting the creation of 2D and 3D games, virtual reality (VR) applications, augmented reality (AR), and mixed reality (MR). Unity's intuitive interface and flexible architecture make it accessible to both novice and experienced developers.

The game's concept centers around survival on a secluded island. Players will need to explore the territory, find resources, and build shelters to survive the challenges of nature and potential threats.

The first step involves designing the island in detail. Using Unity's modeling and sculpting tools, we have created the terrain, add vegetation, water, and land elements, crafting an authentic and engaging environment.



Fig. 1. The island where the action of the game takes place

Survival mechanics are central to the game experience. We have integrated the resource management system, building shelters, hunting for food and other activities necessary for survival on the island.



Fig.2. The set of objects available in the game

Visual and sonic details are crucial to creating an immersive atmosphere. We work on realistic textures, impressive visual effects and immersive sounds to emphasize the beauty and dangers of the island.

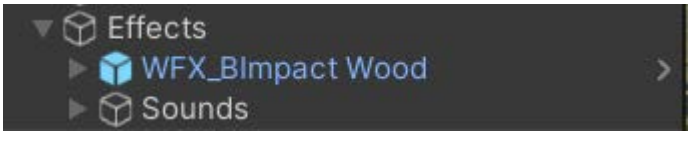


Fig.3. Visual and Sound Effects

A crafting system in the context of game development refers to a game mechanic where players can create new items or combine existing ones to produce different, often more valuable or useful, objects. Crafting systems are commonly found in survival

games, RPGs, and sandbox games, where resource management and item creation are key gameplay elements.

User interface (UI) in games is a critical part of the gameplay and visual identity. It's also one of the most effective ways to communicate with and guide your players. UI artists and game developers can grow their skills by learning to use UI authoring tools in Unity.

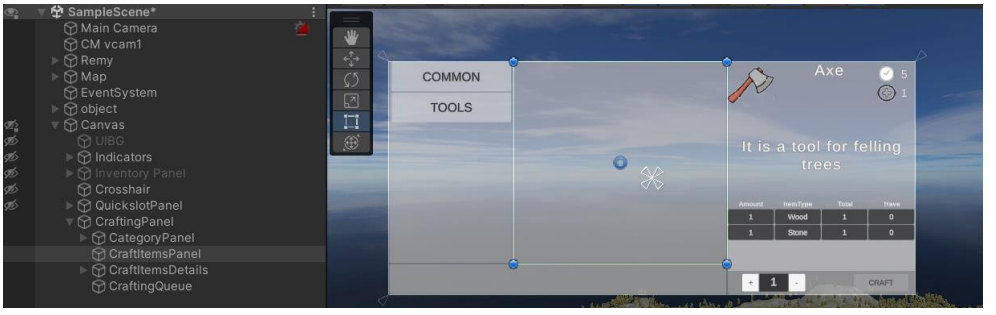


Fig.4. UI tools

Using the particle systems in Unity, we can create a lot of effects, from stars to natural phenomena like rain, storm, tsunami and clouds. Unity's particle system is super robust and versatile, letting us simulate moving liquids, smoke, flames, and more. With it, it's easier to represent effects that would otherwise be difficult to do with just meshes or sprites, because many of them are fluid and intangible in nature. So this particle system gives us the tools to make the games and apps come alive with immersive and realistic visual effects.

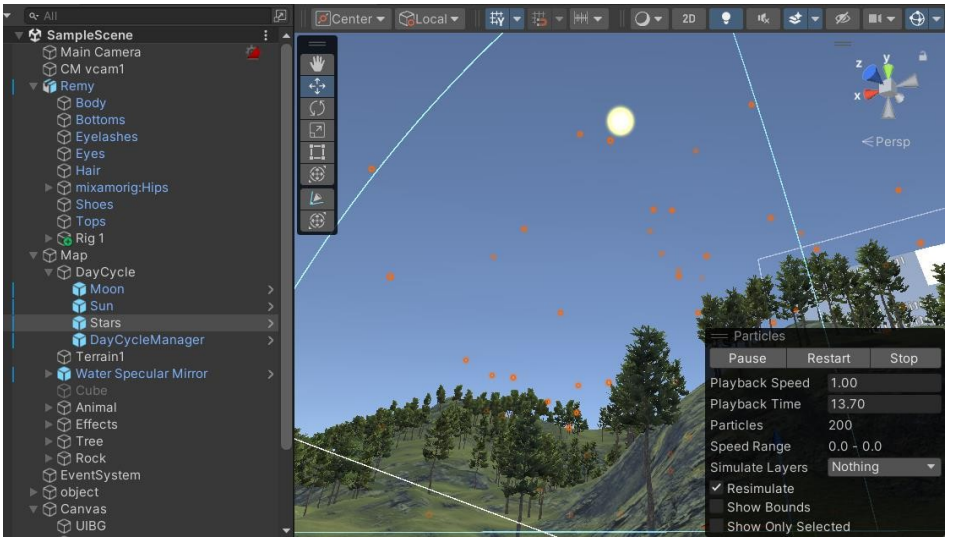


Fig.5. The Day/Night Cycle

In conclusion, developing a video game is a complex process that requires a combination of knowledge and skills in areas such as programming, animation, design and graphics. However, there are a variety of resources available online to learn and start developing your own game.

Reference:

1. Unity Documentation, https://docs.unity.com/
2. Programming in C# in Unity, https://unity.com/ru/how-to/programming-unity
3. Inventory sistem in unity, https://youtu.be/69pvr8x58aI?list=PLMmkX0Uhb4kq_OUQZQApf6EwUUd_J9tGw
4. https://docs.unity3d.com/Manual/UIToolkits.html

Recommended
Ludmila NOVAC, *Dr., conf. univ.*