Review on SJCET ARENA

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Abstract—Treasure hunts are currently difficult to do because they are time consuming and require a lot of planning and work. So, introduced game where you can participate in a virtual treasure hunt. Physically, to run a treasure hunt, different teams must be present at the same time, and each team must accommodate the other. However, with the introduction of virtual treasure hunts, teams can participate in the game from the comfort of their homes or anywhere. According to studies, people born between 1995 and 2010 grow up in times of increased stress and anxiety. Studies have shown that video games help people reduce stress and anxiety. Therefore, the main purpose of developing this game is to reduce people's stress and anxiety. Because locations are based in the real world, they can help people better understand their surroundings. The main purpose is to create a treasure hunt based on our college stadium so that our college students can get a clearer picture of our college. The game consists of different levels that students must complete by finding treasures with the help of various clues.

Index Terms—Virtual treasure hunt, Video games, Planning and work, Clues, Stress and anxiety

I. INTRODUCTION

Learning to code by making games promises high motivation, engagement and fun for students. The use of specialized tools with a built-in physics engine provided additional appeal to teenagers. An understanding of modern information and communication technology (ICT) is more important than ever for successful participation in our society. Digital Competence is recognized as the core literacy of the 21st Century . The ability to understand and create source code is an important key to better understanding current technology and computational thinking. At this point, development of the game begins. Game development aligns well with ICT literacy and computational thinking and is accompanied by high motivation, engagement and increased learning.

II. OBJECTIVE AND SCOPE

- To introduce a real time experience to the users or gamers.
- To provide them with a new adventure and challenging level which might be a challenge to their cognitive skills.
- In order to provide the gaming with realistic touch.
- To improve the thinking ability for gamers.
- To bring excitement and enjoyment for gamers while playing.

Our main goal is to create a treasure hunt game that people can access virtually. This will provide a real-time experience to users or gamers. Reduce the time and cost of physically finding treasure. Improve gamers' thinking skills. New adventures and challenging levels to challenge your cognitive abilities.
Studies show that people born between 1995 and 2010 grow up in a time of increased stress and anxiety. Studies have shown that video games help people reduce stress and anxiety. Therefore, the aim is to reduce people's stress and anxiety through games. Because locations are based in the real world, they can help people better understand their surroundings. Reduces stress, anxiety and provides relief to the user. It provides gamers with a realistic touch.

III. LITERATURE REVIEW

A. Unity

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Worldwide Developers Conference as a Mac OS X game engine. The engine has since been gradually extended to support a variety of desktop, mobile, console and virtual reality

platforms. It is particularly popular for iOS and Android mobile game development, is considered easy to use for beginner developers, and is popular for indie game development[1].

The engine can be used to create three-dimensional (3D) and two-dimensional (2D) games, as well as interactive simulations and other experiences.The engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering, construction, and the United States Armed Forces.The Unity game engine launched in 2005, aiming to "democratize" game development by making it accessible to more developers.Unity was initially released for Mac OS X, later adding support for Microsoft Windows and Web browsers[2].
Within 2D games, Unity allows importation of sprites and an advanced 2D world renderer. For 3D games, Unity allows specification of texture compression, mipmaps, and resolution settings for each platform that the game engine supports, and provides support for bump mapping, reflection mapping, parallax mapping, screen space ambient occlusion (SSAO), dynamic shadows using shadow maps, render-to-texture and full-screen post-processing effects.

Two separate render pipelines are available, High Definition Render Pipeline (HDRP) and Universal Render Pipeline (URP, previously LWRP), in addition to the legacy built-in pipeline. All three render pipelines are incompatible with each other. Unity offers a tool to upgrade shaders using the legacy renderer to URP or HDRP[3].

B. Unreal

Unreal Engine (UE) is a 3D computer graphics game engine developed by Epic Games, first showcased in the 1998 first-person shooter game Unreal. Initially developed for PC first-person shooters, it has since been used in a variety of genres of games and has seen adoption by other industries, most notably the film and television industry[10]. Unreal Engine is written in C++ and features a high degree of portability, supporting a wide range of desktop, mobile, console, and virtual reality platforms.
The first-generation Unreal Engine was developed by Tim Sweeney, the founder of Epic Games.Unreal was noted for its graphical innovations.The big goal with the Unreal technology all long was to build up a base of code that could be extended and improved through many generations of games[4]. Meeting that goal required keeping the technology quite general-purpose, writing clean code, and designing the engine to be very extensible.

C. C-Sharp

C# (C-sharp) is a general-purpose programming language that is primarily intended for use with the .NET framework.It is extensively used by developers in the creation of games.C# is problem-oriented, which means that its code is simple to read and understand; even for beginners.C# is also a statically-typed language, which means that the code is double-checked for faults before being included into the application[5].C# is compatible with all major operating systems.C and unity game engines are the best tools that beginners start with. Unity is a real game engine that enables you to produce scripts for interactive content in games.By combining C# and unity additional attributes can be added and make them unique by writing scripts rather than using inbuilt features[6].

D. A*

A* is a graph traversal and path search algorithm, which is used in many fields of computer science due to its completeness, optimality, and optimal efficiency[7].Compared to Dijkstra's algorithm, the A* algorithm only finds the shortest path from a specified source to a specified goal, and not the shortest-path tree from a specified source to all possible goals. This is a necessary trade-off for using a specific-goal-directed heuristic. For Dijkstra's algorithm, since the entire shortest-path tree is generated, every node is a goal, and there can be no specific-goal-directed heuristic[8].
Another aspect that makes A* so powerful is the use of weighted graphs in its implementation. A weighted graph uses numbers to represent the cost of taking each path or course of action. This means that the algorithms can take the path with the least cost, and find the best route in terms of distance and time[9].

E. Wavefront

Wave Front algorithm(WFA) uses the breadth first searching method . It works on grid map which has a number of columns and rows. At first, in order to expanding the wave in the environment, the value of the target point has been assumed as one. Then, the values of its adjacent cells are increasing by adding one from the target point until fill up the workspace regardless the obstacles points, which the start point gives a largest value in the workspace. Secondly, the path from the start point to the target is generated by going from the largest value to the nearest node of that value decreased by one until reaching to the smallest positive value, which is the target[10]. Whenever, the number of geometry neighborhood increased the performance of the algorithm becomes closer to optimal[11].

F. Ant Colony

Ant colony optimization (ACO) is an algorithm which simulates ant foraging behavior. When ants search for food they leave pheromone trails to tell other ants which paths to take to find food. In computer science, this has been adapted to many different problems including the traveling salesman problem[12]. The algorithm functions by randomly sending out artificial —ants from a hub into a search space. Each ant finds a solution and then leaves an artificial pheromone trail along its path. The amount of pheromones depends on the success of the solution, i.e., a better solution leaves a stronger pheromone trail[18]. The next iteration of ants takes the pheromones into account when choosing a direction to travel. Pheromones also weaken over time so less-optimal paths are abandoned for more-optimal paths. The result of many iterations is finding a good solution.

CONCLUSION

Developing games in the classroom improves motivation, engagement, and learning for most students. Unity offers some attractive features, such as the easy-to-use physics engine, and there are games where you can engage yourself in a virtual treasure hunt. The introduction of the Virtual Treasure Hunt allows teams to engage in the game from the comfort of their homes or anywhere. SJCET ARENA helps users reduce people's stress and anxiety, improves problem-solving and thinking skills. SJCET ARENA will bring you a sense of accomplishment and boost your confidence. SJCET ARENA bring you new adventures and challenging levels that will challenge your cognitive skills.

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