Review of 3D Gaming Architecture to Develop A Game For Indian Traffic Rules

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Abstract- *The use of virtual reality simulations and digital games in learning and assessment is expected to increase over the next several years. Although there is much theoretical support for the benefits of digital games in learning and education, there is mixed empirical support. Game is an activity that engages itself in for fun, learn, and achieve, amusement. Computer game evolved late 1980's.Those games were MARIO, PACMAN etc. Computer game made a huge revolution, though the technology in computer field was in its beginning stage, as time passed the technology also evolved, computer game also evolved. The game was designed basically for educating the children and teenagers who nowadays use smartphones to play games. The purpose of this game is to educate the player considering the most often traffic rules while driving vehicle in real time. Safe driving according to standard traffic rules will result in collecting coins.*

I. INTRODUCTION

A game based on Indian Traffic Rules is a 3D game which not only kids can enjoy but also adults thereby getting to know rules and regulations needed to be followed while driving any vehicle. Assigned considering the most often traffic rules to teach new people how to drive on road [1]. We have converted this game to virtual reality [6] so that people can enjoy this game in more realistic manner. On further research we realized that the game could be used by the R.T.O. The game could be given a database connectivity, which can store the driving license applicant's data such as learning progress, times he failed a level (broke the rules), etc. which can be then used to analyze the applicant's eligibility [4].

II. LITERATURE SURVEY

As the number of road accidents is merely increasing day by day among the youths, one of the major reasons found is the violence of traffic rules. School-aged children worldwide are growing up immersed in a media-rich, ubiquitous, "always connected" world. Concerns over the need to reform the educational system to effectively prepare students for a much more technology driven, interconnected and competitive "flat world" are being voiced by politicians, educators, parents, and others across the globe. In order to tackle this problem we have developed this game to give some basic standard rules to learn in form of a game. As we all know that playing a game is readily accepted by today's youth rather than learning rules in actual.

III. METHODOLOGY

For a game, the most important artificial intelligence is waypoint navigation by carefully placing points (nodes) in the game environment to move the game-controlled characters between each point. The major drawback of this method is that this waypoints need to be manually setup, and it is a time consuming work. Meanwhile, these waypoints will depend upon the speedway track; different speedway track requires different configuration waypoints [10]. In addition the number of waypoints and the location of waypoints are also different human factors.

Finally, a more general dynamic pathfinding algorithm which can solve the random obstacles avoidance problem in a racing game is also proposed. In our project we will use the A* algorithm, to find the shortest path while avoiding the obstacles. [10] A*basically adds together two components. First, it looks at the cost to move from starting node to any givens node. Next it looks at the cost to move from the given node.

About UNITY 3D:

Unity is the ultimate game development platform. Unity is used to build high-quality 3D [8] and 2D games and deploy them across mobile, desktop, VR/AR, consoles or the Web, and connect with loyal and enthusiastic players and customers.

IV. IMPLEMENTED SYSTEM

The game is designed considering the most often traffic rules which the people don't follow may that be the common practice of starting to drive 5-6 seconds before the timer has elapsed and the signal has turned to green from red

or driving above speed limits. Whenever the player violates any of the traffic rules penalty will be imposed on his/her score. Also the game includes typical Indian roads with their conditions so that the player would have as realistic experience as possible [3]. The game starts with implementation of the term "Gamification" here we have designed a stage where a user has to move from one checkpoint to other representing the process of how to apply for driving license which includes listing the necessary documents, collecting them . Further stages of the game are divided into three main levels namely Learner, Amateur, and Professional. These main categories are further divided into sub levels where we have implemented various which imitates real life scenario of the person applying for driving license and thereby he learns various traffic rules during the process.

1) **Beginner:** This consists of levels which are based on the driving tests tracks which are common almost everywhere.
2) **Amateur :** This consists of levels which represent how a beginner should drive on roads and follow the rules ,maybe the traffic signals, speed limits , speed breaker, etc.
3) **Professional:** This consists of levels based on how to drive on highways in real life scenarios such as,in case of an accident ahead or there is an ambulance approaching us.

Working of the game:

1) Earn points by completing different levels.
2) Break the rules then penalty in terms of points and level restarts.

The game also consists of "Rules" (list) which consists of different traffic signs and their meanings, Future enhancement is possible by making it mandatory to read set of rules to proceed further in Game [4].

There are three different view for the vehicle for ease of driving.

About Virtual Reality:

This game also supports virtual reality [7] which will give a user a realistic experience.

This feature is included because this will entertain more to the user as compared to 2D version of game.

Activity Diagram

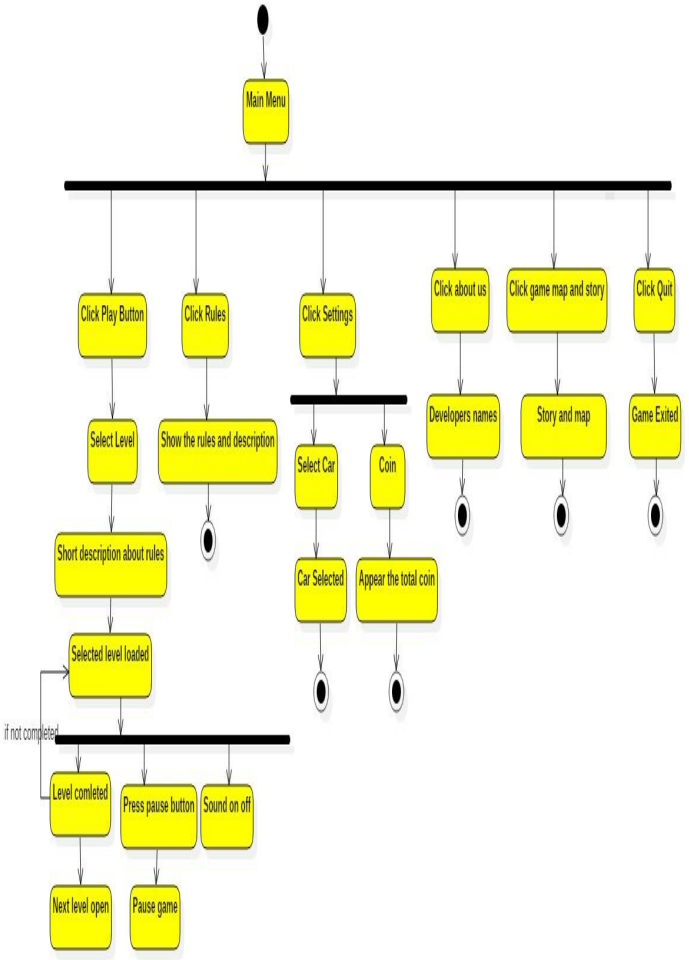

Figure 1. activity diagram

Main Menu

Figure 2.

Level:

Figure 3.

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