Mid Term Progress on

3D-Platformer

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By

Sandesh Nilas Khatiwada (019-382)

Satyam Jha (019-387)

Susant Neupane (019-393)

Supervised By: Asso. Prof. Sundar Kunwar

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ABSTRACT

"3D-Platformer" is a single user first person perspective platform game designed exclusively for windows. The game will have a 3D platform called the lava over a base platform where a capsule will be present. The capsule is subjected to be controlled by the player. The capsule is equipped with a weapon. There will be different levels with different obstacles. Moment of player across the x-axis, y-axis and z-axis and the game will restart when the player collides with the lava which is the red cube in the game.

There is character controller which make the player walk and adjust the position in the physics integrated material. Multiple jumps are disable in the game so that the game feel can be maintain and the game will not be feels like more than life. There are some frictional walks in the game but we made it based on the physics so there will the physics integration in the game and make the game more realistic and the game feel will be maintained.

 [*Keywords: Platformer, character controller, game feel, physics object*]

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Secondly, we would also like to thank our supervisor Asso. Prof. Sundar Kunwar and friends who helped us a lot in finishing this project within the limited time.

We are also making this project not only for marks but to also increase our knowledge.

THANKS AGAIN TO ALL WHO HELPED US.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to the Project

The following project emphasizes on a game which we will develop namely, "3D Platformer" [1]. It is a single user first person perspective platform game designed exclusively for windows. There will be a 3D platform called the lava over a base platform where a capsule will be present. The capsule is custom made by the developers of the game also the game environment is developed inhouse. The capsule is equipped with a weapon. The player is supposed to take control of the capsule and eliminate the enemies and dodge through the obstacles in between. The level is only finished when the capsule reaches s the flag point. The flag point is the way to another level. The next level will offer different challenges stronger opponents more obstacles. Every level will be different. The capsule will fall off the lava if moving across the x-axis, y-axis and z-axis and the player will lose life. The base platform will be green in color and the lava will be red in color. To control the ball, there will be 4 arrows in different directions to move the ball efficiently. The game will be designed with programming language C# and the game engine will be Unity games. There are majorly components capsule and cube and some others seen in the environment and interact with the player and coordinate with character controller [2].

1.2 Problem Statement

In the present scenario, games are being developed that consume a lot of data, require 0greater storage and RAM, specific graphics. They have become quite demanding in terms of requirements from the user. The 3D platformer is aimed for people who work on their PCs all throughout the day can take short breaks and play this. It is an offline game and does not require critical thinking or a lot of attention into solving anything. The game will be easy and smooth to run.

1.3 Objective

The objective of 3D PLATFORMER is to provide entertainment through simulation for the player. This is intended to be offline, 3D and single player.

- To make the game accessible to each and every type of user.
- To use of minimum specs will be done which will make the game low of cost.
- To make the game simple and fun to play and make the user more engaged in the game.
- To help user to think logically by problem solving technique.

1.4 Aim

The simple aim of our team is to meet the all the objective mentions above and completely deploy the game in the play store and cross platform applications like steams and encourage the more game developer to deploy their game.

1.5 Motivation

The motivation for this game was gained from the simple games we played to kill time while waiting for someone or take a short break in the middle of work. While games like snakes, candy crush existed, we were looking for a simple game that would consume less graphics and storage and be available offline.

1.6 Scope and Application

The scope and application of the 3D platformer is to write a simulation game using C# programming language. This game will be able to attract users into playing this while they are idle, looking for break. Player has to reach other level by controlling the ball with keyboards (up, down, left, right). Each level will be crossed with the help of the track. Later on, it will be developed on android and IOS application too. Newer levels shall also be added. Based on user experience, new additions and features will be updated in future.

CHAPTER 2: LITERATURE REVIEW

A game is a structured form of play, usually undertaken for entertainment or fun, and sometimes used as an educational tool. Games are different from work, which is usually carried out for remuneration, and from art, which is more often an expression of aesthetic or ideological elements. However, the distinction is not clear-cut, and many games are also considered to be work (such as professional players of spectator sports or games) or art (such as jigsaw puzzles or games involving an artistic layout such as Mahjong, solitaire, or some video games).

Games are sometimes played purely for enjoyment, sometimes for achievement or reward as well. They can be played alone, in teams, or online; by amateurs or by professionals. The players may have an audience of non-players, such as when people are entertained by watching a chess championship. On the other hand, players in a game may constitute their own audience as they take their turn to play. Often, part of the entertainment for children playing a game is deciding who is part of their audience and who is a player. A toy and a game are not the same. Toys generally allow for unrestricted play whereas games come with present rules.

Key components of games are goals, rules, challenge, and interaction. Games generally involve mental or physical stimulation, and often both. Many games help develop practical skills, serve as a form of exercise, or otherwise perform an educational, situational, or psychological role. Then after watching the Dani game dev blog [3] we get the concept of wall walking for our game.

Attested as early as 2600 BC, games are a universal part of human experience and present in all cultures. The Royal Game of Ur, Senet, and Mancala are some of the oldest known games. [4]

Ludwig Wittgenstein was probably the first academic philosopher to address the definition of the word game. In his Philosophical Investigations, Wittgenstein argued that the elements of games, such as play, rules, and competition, all fail to adequately define what games are. From this, Wittgenstein concluded that people apply the term game to a range of disparate human activities that bear to one another only what one might call family resemblances.

A video game or computer game is an electronic game that involves interaction with a user interface or input device such as a joystick, controller, keyboard, or motion sensing device to generate visual feedback. This feedback mostly commonly is shown on a video display device, such as a TV set, monitor, touchscreen, or virtual reality headset. Some computer games do not always depend on a graphics display, for example text adventure games and computer chess can be played through teletype printers. Video games are often augmented with audio feedback delivered through speakers or headphones, and sometimes with other types of feedback, including haptic technology. Character controller [5] is implemented from the unity [6].

Video games are defined based on their platform, which include arcade video games, console games, and personal computer (PC) games. More recently, the industry has expanded onto mobile gaming through smartphones and tablet computers, virtual and augmented reality systems, and remote cloud gaming. Video games are classified into a wide range of genres based on their type of gameplay and purpose.

A video game, like most other forms of media, may be categorized into genres. Genre names are normally self-describing in terms of the type of gameplay, such as action game, role playing game, or shoot them up, though some genres have derivations from influential works that have defined that genre, such as roguelikes from Rogue, Grand Theft Auto clones from Grand Theft Auto III, and battle royale games from the film Battle Royale. The names may shift over time as players, developers and the media come up with new terms; for example, first-person shooters were originally called "Doom clones" based on the 1993 game. A hierarchy of game genres exist, with top-

level genres like "shooter game" and "action game" that broadly capture the game's main gameplay style, and several subgenres of specific implementation, such as within the shooter game first-person shooter and third-person shooter. Some cross-genre types also exist that fall until multiple top-level genres such as action-adventure game. Out of these platformer games is one of its kind. Ray cast [7] is used in the player detection and delectation of the object.

Platform games (often simplified as platformer or jump run games) are a video game genre and subgenre of action games in which the core objective is to move the platheir level design featuring uneven terrain and suspended platforms of varying height that requires use of the player character abilities, such as jumping and climbing, to navigate the player into the environment and reach their goal. Other acrobatic maneuvers may factor into the gameplay as well, such as swinging from objects such as vines or grappling hooks, jumping off walls [8],air dashing, gliding through the air, being shot from cannons or bouncing from springboards or trampolines. Games where jumping is automated completely, such as 3D games in The Legend of Zelda [9] series, fall outside of the genre. Multiplayer and shooting game like COD, PUBG etc. are popular among the gamer. The only problem with these games is it required high performance laptop and since it is a multiplayer it require more than one player to play and required high internet speed. So, we are trying to develop our game. It will decrease the players stress and help to develop the problem-solving capacity.

CHAPTER 3: SYSYEM DESIGN

The figure shows the flow of the game the player is supposed to shoot at the enemies and dodge through the obstacles. Different decisions made in the game can change the output. So, every time there can be a different result. There is no complexity in understanding the game.

For the development of the game no advanced is required a computer with basic ram and graphics was used in making of this game. Also, to run this this game in a PC no advanced hardware is required. The game is supposed run smoothly on every basic PC. The motive of the game is that it could run on every pc which doesn't have a lot of ram, graphics and top end features.

We used C# for the development of this game and unity as the game engine. Also, the game environment, details, and characters are developed by us.
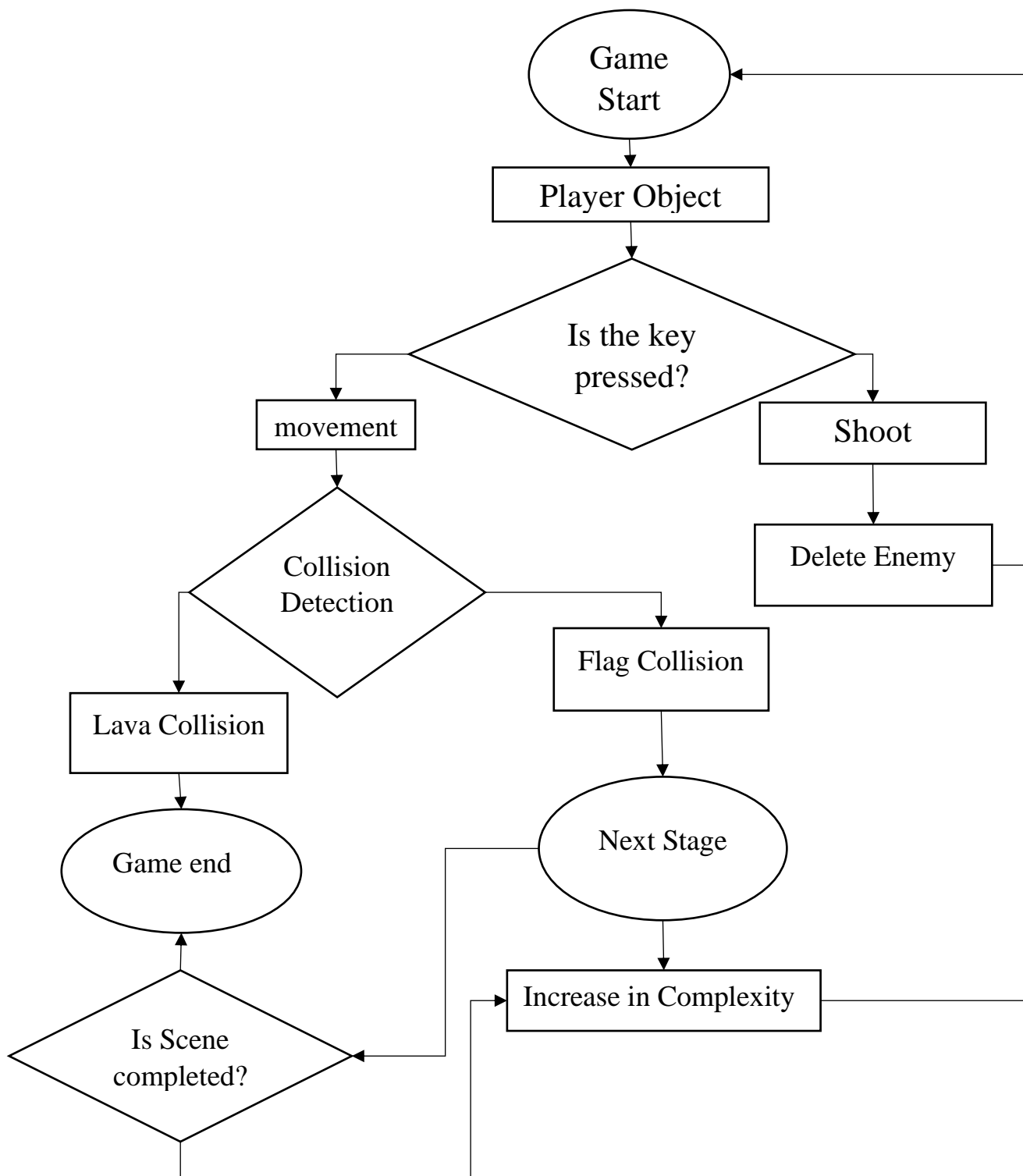
Fig 3.1: System Flowchart

CHAPTER4: IMPLEMENTATION AND DISCUSSION

4.1: Task Completed

- Implemented the player moving system.
- Implemented the Player Moment wrote some scripts for reacting with key pressing and all.
- Give player the clipping angle of 90 and -90 degrees to the mouse.
- We implemented the wall walking in our game.
- Implemented the player following code

4.2: Task to be complete

- Extend the stages and make more fun.
- Give the player and enemy shooting mechanism with projectile motion.
- Add some graphic to our project and make it more presentable and fun to play.
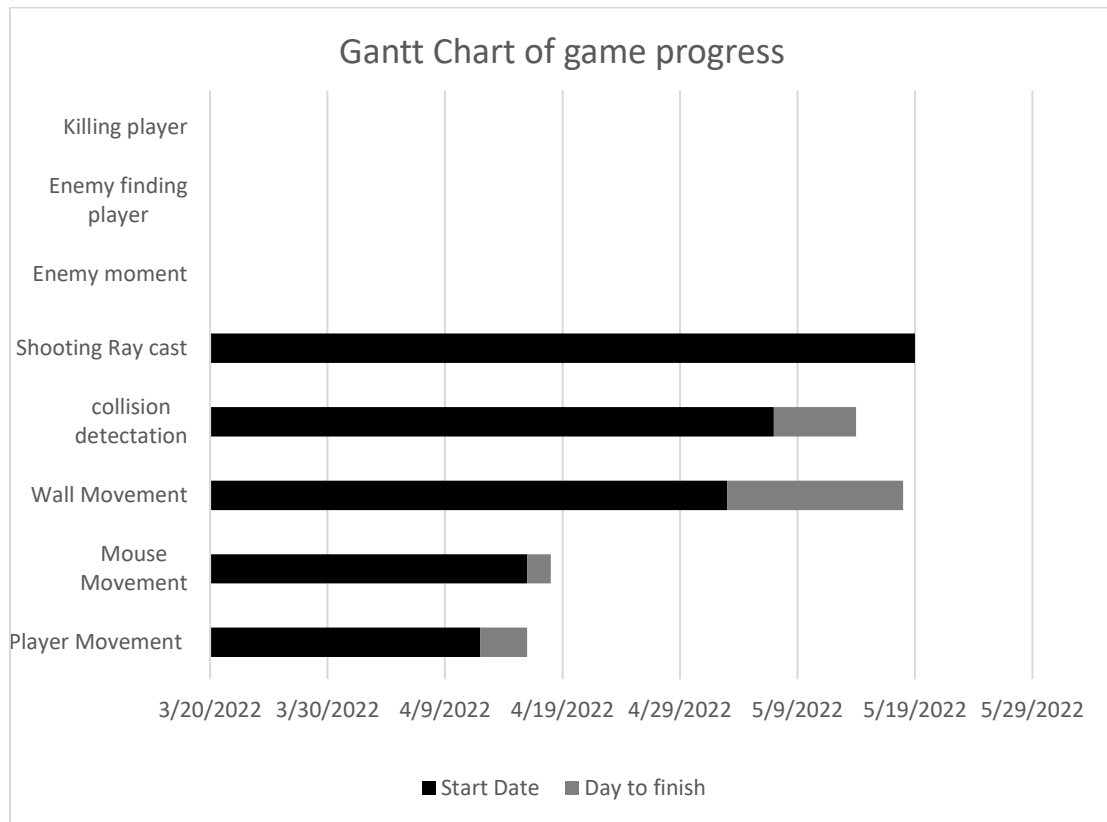- Give player the gun and ability to shoot and kill enemy.

Fig 4.1 Gantt Chart for game progress

In the Gantt chart we track the progress of the project. The dark black color indicates starting date and gray line indicates the days required to finish the project. Maximum days was taken by shooting ray cast. Collision control was also taken second most time to make and the complexity to finish was also high. Wall movement was taken so it also takes 15 days to complete.

CHAPTER 5: CONCLUSION

This game fulfills the need of action game players. The game will be purely offline and 3D. It gives us the more knowledge about the unity, 3D modelling and C# language. By playing this game we, as developers will improve our problem-solving strategy. In coming days 3D platformers will surely be the interesting and popular game among the gamers and can be found in different platform like Android, ISO and so on.

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