5. Space Runner – Software Requirements Specification

5.1 This Space Runner project will consist of a procedurally generated two-dimensional platformer with a directional pad for movement and two buttons for attack and jump. The screen will be constantly moving forward and if the player doesn’t move fast enough or dies to enemies and pitfalls they will have to restart the game. The game will include gems to collect from enemies and throughout the playfield to upgrade the player character, which will be explained later in the requirements sections. The remainder of this document is structured as follows: section 5.2 contains the functional requirements of what the end product will include game play wise, section 5.3 contains the performance requirements of how well the end product will act during use, and section 5.4 contains the environment requirements of what the end product will need software and hardware wise to run properly.

UML DIAGRAM

C:\Users\Nick Soffa\AppData\Local\Microsoft\Windows\INetCacheContent.Word\Space Runner UML.PNG

5.2 Functional Requirements

5.2.1 Graphical User Interface (GUI)

5.2.1.1 The GUI shall provide a main menu system when the app is opened to be able to access all functions of the application.

Functions of the application will include starting of the game itself and a high score menu to look at game statistics

5.2.1.2 The GUI shall provide left and right buttons for movement and two buttons to control jumping and combat of the main character

5.2.1.3 The GUI shall provide a colored bar for the health value of the player character

5.2.1.4 The GUI shall provide a counter for the value of collected gems

5.2.1.5 The GUI shall provide a menu when the player loses

Menu options will include selections to restart the game or go to the upgrade menu

5.2.2 Game Play

5.2.2.1 The game shall have randomly generated level design as the player runs through the game

The random generation will randomly pick from a selection of level layouts and fill them in to generate the gameplay

5.2.2.2 The game shall have procedurally generated enemies that will populate the levels

5.2.2.3 The game shall have a continually moving screen that will kill the player if they get caught by it

5.2.2.4 The game shall have a main player character that can be controlled by the player

Options will be provided to move, jump, and attack throughout the game space

5.2.2.5 The game shall have gems that the player can collect to spend on upgrades for the main character

5.2.2.6 The game shall have an upgrade system that the player can spend collected gems on to upgrade the main character’s abilities

5.2.2.7 The game shall speed up incrementally as the player gets farther in the game

The speed will be determined for every 100 units the player has traveled in the game and will slowly gain 0.5 units/second to a max of 4 units/second

5.2.2.8 The game shall record the distance the player gets from the starting point in a high score data base

The game should record other statistics that the player will add to during play such as number of enemies killed, gems collected, or total distance traveled over every playthrough

5.2.3 High Score Menu

5.2.3.1 The high score menu shall include the total distance traveled over all games

5.2.3.2 The high score menu shall include the farthest distance traveled in one game

5.2.3.3 The high score menu shall include the total value of gems collected over all games

5.2.3.4 The high score menu shall include the total number of enemies defeated

5.3 Performance Requirements

5.3.1 Response Time

5.3.1.1 The app shall respond nearly instantly to the user’s touch commands

While the game is being played and the user is controlling the character, the character will react to user input as soon as the player touches a button on screen. Input lag will be extremely minimal.

5.3.1.2 The app shall not lag while playing the game

The procedural generation of more terrain and enemies will not cause the game to slow. The game should flow while playing.

5.3.1.3 The app shall return the list of local high scores within 1 second of clock time

Once the user has clicked on the high score menu the local high scores will populate within 1 second

5.4 Environmental Requirements

The only hardware requirement needed to play Space Runner is an updated smart phone or tablet with access to the internet to download the app, all recent smart phones would have the hardware to run the game efficiently.

The only software requirement is to have an operating system on your smart phone able to download apps from the app store. Unity will only be necessary to develop the game and not to play it.