Tom Robinson

SID: 1409046

Introduction to Computer Gaming

(MOD003217)

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Introduction & Justification

Escaping Area 51 is a 2D platformer game which I have created to be a 'Blockbuster' game, set in the Californian desert, you are an alien lifeform trying to escape the infamous and mysterious 'Area 51', an old military base which is now the center point for many theories and conspiracies surrounding extraterrestrials on Earth. During the escape from the base there will be many enemies for the player to face before it can reach the part of the ship at the end of each level - these are needed for the character to escape the planet and complete the game. Platformers have been a best seller among gamers for many years and has developed into more complex games like the 'Little Big Planet' series. With incredible sales and personal enjoyment in the 'Super Mario Bros' series, a 2D platformer has always been a game genre I have been interested in.

With regard to the game requirements given, I have created a game with a strong narrative which will be made very clear throughout the game so the users can tell straight away what the theme is. I chose to make a 2D platformer as I feel this was the best way to represent the theme and most enjoyable. The game has been made in Unity 3D. The theme of aliens in 2d platformers isn't a new one with 'Alien Carnage', developed by 'SubZero', releasing in 1994, but there are very few in the perspective of the alien. This is why I decided to explore this theme in greater depth. The mystery and conspiracy around Area 51 is something that is easy to get lost in, which I found when researching a theme for this game, with so many stories surrounding the area it was clear this was a strong base to build my game around.

There is many interactions set within the game including spawning enemies which will shoot projectiles at the user, I came to the decision of making moving enemies because it would be more challenging for the player to destroy enemies that are shooting them and are patrolling the area that they are set on. There is also be a health bar for the user to see how much health the player has left for this level, there will be no health pickups for the player to collect as there will be many shorter levels instead of longer levels with multiple checkpoints. This will make the game more challenging and means that I can make the game progressively harder as the player progresses through the game.

An important part of any 'Blockbuster' game is the menu, which will be key for setting the tone and theme of the game. This will be the first scene that the user will encounter so it will be important for this to be implemented correctly. As well as the GUI system for the menu there will also be music, which will also continue into the actual game, sound effects will be key for the player to fully immerse the player into the game. At the start of the game there will be some text on the screen which will inform the player on the controls for the player. Another feedback mechanism I have used in this game to fit the game requirements is the red flashing screen to indicate that the player has been hit by an enemy projectile. This game is aimed at any alien enthusiast but mainly young gamers between the ages of 5-17.

Development Process

When creating 'Escaping Area 51!' there was many challenges to overcome, one of the greatest challenges I faced was the creation of the health for the player and linking this to the health bar that I implemented in the game. This was a key aspect of the game as it requires GUI elements (health bar), sound effects (when player gets hit there will be grunting), giving feedback to the player (screen flashing red when player is hit) and special effects (when the player dies there will be an explosion and the player will disappear). To tackle this problem I broke down the development into stages, getting the player health set up first, only viewing health reduction in the inspector, then designing, implementing and connecting the health bar to the player health then adding the screen flash and finally special effects.

When designing the game I came across a few important decisions that had to be made early in the development process, one of these was the decision to have the character be able to fall off the bottom of the game and die, like in a classic 2D platformer, or have it so it would be more difficult for the player if they fell down further levels. I decided to keep it designed like a classic 2D platformer as this fits with theme that I chose greater, it may become more like a puzzle game if the player has to work their way up to higher levels and I prefer to play classic 2D platformers.

Another challenge I faced when creating this game was getting the enemies to shoot their projectiles, then from there, get them to shoot the projectile in both directions, this was important to the development of my game as I wanted to have the enemies 'patrolling' each segment of ground they were occupying, this meant they would be shooting in both directions, to overcome this I watched various videos which were mostly based on player shooting, but adapted them to be used as an enemy shooting at the player.

Something that I had to learn to complete this game was the use of the 'Animator' and the animation function in Unity, this was obviously one of the most key components of a 2D game, with every part of the player and enemy movement having to be animated. Below I have drawn a table showing the relationships between all of the different types of animation for the player and the enemies.

Enemies

Player

Punching

Walking

Any State

Running

Idle

Any State

Jumping

Testing

Testing of any game is always a key factor and was something that I constantly repeated throughout the process of my game, during one of the tests I found that my bullets kept flipping during the time they were active for, this, I found was due to the script for the enemy walking being on the bullet instead of the enemy itself, a full table of tests is available to see on the attached 'Test Table'

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Section of Application | Test No | Purpose of Test | Test Data | Expected Result | Pass/Fail | Date | Notes | Procedure to Fix |
| **Top Menu** | 1 | To check that the game will run when the ‘Play Game’ button is pressed | Click Button | Game will start from level 1 | Fail | 27/04/15 | Game loaded at level 2. | Easy fix, change number of level loaded in code |
|  | 2 | “” | “” | “” | Pass | 27/04/15 | Game is now loading level 1 | N/A |
|  | 3 | To check that when the music button is ticked music plays, when it is unclicked it will not | Music button unchecked | Music will not play | Pass | 27/04/15 | N/A | N/A |
| **Level Design** | 4 | To check that all correct parts of the game are reachable | Run level through all possible correct paths | Player will be able to reach end of level | Fail | 29/04/15 | Character was unable to jump between platforms on multiple occasions on first attempt | Moving platforms closer together |
|  | 5 | “” | “” | “” | Pass | 01/05/15 | Character was able to jump between all intended platforms | N/A |
|  | 6 | To check that the background will stay in view wherever the player is in the game | Send the player to as far as they can go on both axis | No plain coloured background can be seen | Fail | 29/04/15 | When player jumped off the platform at the end of the level there was some plain background found | Extended background one more time |
|  | 7 | “” | “” | “” | Pass | 29/04/15 | The background is now not viewable from any point in the game | N/A |
|  | 8 | To check that player and enemies flip when prompted (either by keyboard or collision) | Move player with arrow keys, watch enemies collide and change direction | Both sprites for character and player will flip | Pass | 30/04/15 | Player flips but bullets do not flip currently (will re-test at later date) | N/A |
|  | 9 | To check the health bar will decrease with the health of the player | Standing in front of enemy and taking damage | The players health will decrease by 10% each time bullet hits the player | Fail | 02/05/15 | The health bar will not go down but player health is. | Attach the health bar from hierarchy into the inspector under the character |
|  | 10 | “” | “” | “” | Pass | 05/05/15 | The health bar now corresponds to the players health | n/a |
| **Game Mechanics** | 11 | To check when prompted by the keyboard the player’s character will move/punch | Pressing down right arrow key | Character will move left | Pass | 26/04/15 | N/A | N/A |
|  | 12 | To check when player punches enemies the enemies take damage / die | Pressing space in the vicinity of an enemy | The enemies will dies when punched | Fail | 30/04/15 | The punching is temperamental, sometimes it works and other times it doesn’t | Possibly extend the arm length of character |
|  | 13 | “” | “” | “” | Semi pass | 05/05/15 | The punching is still only partially working | Unsure on another fix, but I am aware of this problem. |
|  | 14 | To check when player reaches ship part it will take them to the next level | Moving the player into the first ship part | The player will start level 2 | Pass | 28/04/15 | N/A | N/A |
|  | 15 | To check when the player is hit by enemy bullets damage taken away from the player | Standing in front of enemy and taking damage | The players health will decrease by 10% each time bullet hits the player | Fail | 29/04/15 | The bullets are currently flying through the player | Check all colliders are turned on, check ‘Is enemy’ is turned off on player |
|  | 16 | “” | “” | “” | Pass | 30/04/15 | Player is now taking damage | N/A |

Limitations and Further Development

Some of the limitation of this game include the length of play time that can be achieved without a change of scenery or enemies, I would have liked to have a different background and/or enemy sprite for each level, this is something that I would, given a longer time to develop or if the game was something that received updates regularly, would like to do. This is because it will be more enjoyable to the user to face more variety when completing the game. One Idea concerning sprites and animation is the use of farmers throwing pitchforks at the alien as enemies instead to the space warriors shooting bullets. This would fit in with the theme as there is a large amount of farms that occupy the ear around Area 51.

Another limitation of Escaping Area 51! is that the game isn't something that a player is likely to play for extended amounts of time, this is because 2D platformers tend to be played for shorter amounts of time compared to 3D RPG's as they are effectively just repeating the same type of actions over and over again. Given more time to develop the game I would think about changing the game type to a top down shooter for an added extra (similar to 'Dead Ops Arcade' in the 'Call of Duty: Nazi Zombies' series). Another slight game type change that I would think about implementing is a top down space shooter (similar to 'Space Invaders'), this would fit into my game by being the last mission when the alien has got all the parts to his ship and is flying away from earth but has to shoot through waves of aerial battles.

Another limitation to my game is that sometimes my player can seemingly float in midair, this is due to the character having a larger arm area which is used for the character to punch and destroy the enemies. The punching of enemies is also something that is a little temperamental, with some of the punches landing and others missing.

The final limitation of my game is that the enemy will only shoot in straight lines, ideally I would have the bullets always aiming toward the player when they appear in the enemies range, and this would make the game more realistic. This is something I would develop further given the time and resources.