Revision Plan - Revision 1

Mech-APEX Zero

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Course: Software Engineering 4GP6
Date: March 3, 2018

Revision Change Log

- Separation from High Concept Doc Rev 1

Introduction

This document will summarize the Git feedbacks of the game Mech-APEX Zero. We will be analyzing each issue and determine what changes should be implemented in the future. We will also be outlining new features that we will be adding to the next revision of the game.

Bugs and Suggestions

This section includes bugs and game changing suggestions made by game testers. Some bugs weren't reproduce able and others were the same but reworded. The bugs have been divided into 8 different subsections below. Within the sub sections they will describe the bug, list the priority on fixing it and the estimated difficulty.Priorities range from high, medium and low. Difficulty ranges from easy, medium and hard.

The rational behind the priority range depends on the occurrences of the issue, the amount of risk and the impact on the player's experience.

All player, enemy, audio and instructional bugs will be fixed in the next revision, any bug with an easy tag will likely be fixed, in fact many have already been fixed. Any bug tagged with difficult may not be fixed in time if the written solution doesn't work and can't be solved easily. Many of the visual bugs regarding graphic overlapping, UI sizes at different resolutions and mapping tiles not perfectly lining up may not be fixed in the next revision.

For instance, the graphics overlapping with walls may have medium occurrences but don't affect the game-play at all, in fact most of the issues that are visual bugs will have a low priority status.

Visual Bugs

1. Player GE Graphic overlaps with walls (low, medium)
2. Player appears to be floating due to leg height(low, difficult)
3. Player death playing multiple times after death (low, easy)
4. The player looks as though he should fall off a platform but doesn't (low, hard)
5. If you press "D" "A" "D" or "A" "D" "A" you can dash but have the player's graphic in the wrong direction. (low, medium)
6. Main menu buttons have too much space on high resolution (low, medium)
7. Background tiles does not tile smoothly (low, easy)

Player Bugs

1. The player while crouching doesn't go into his jumping animation. (high, easy)
2. Weird hitboxes on your sword and potentially larger sword
3. Everything is too floaty (high, medium)

4. It is possible to delay vertical movement almost indefinitely while maintaining horizontal movement (high, easy)
5. Getting hit by boss's second fire attack while kneeling stun locks the player (high, easy)
6. kneel walking (High, easy)
7. Attacking while dashing performs the first few frames of the attack then stops, and only works the first time (after that pressing J while dashing does nothing). (High, medium)
8. Can't jump on an enemies head (medium, easy)
9. player can produce walk animation while sprite stays still (High, easy)
10. Crouching and shooting does not initiate animation, fires projectiles from above player sprite (High, easy)

Enemy Bugs

1. Enemy Attacks walls if the player is above it. (High, easy)
2. Rolling enemies do damage to player even though the enemy is dead (High, easy)
3. Boss flame charge hard to avoid (High, medium)
4. Enemies attack aren't interrupted by player attacks. (high, hard)
5. Boss can get stuck on ledge when jumping (high, medium)
6. The enemy flickers between walking left and right animations (High, easy)
7. Boss hit me through the floors (High, hard)
8. Spikes are way too dangerous. (low, easy)
9. Barely on screen enemies can be seen and run animations but don't move (low, easy)
10. Spikes don't kill enemies (low, easy)

Audio Bugs

1. Background music doesn't loop (medium, easy)
2. Colliding with moving block/wall/"gate" after it has opened still produces the opening sound effect (low, easy)
3. Sword sound-effect plays suddenly and repeatedly while in particular location (low, easy)

UI Bugs

1. No pause menu (High, medium)
2. Can not quit game from main menu (high, easy)
3. Small resolution causes mini map to take a big percentage of the screen space (low, medium)
4. Free Mode level select isn't working correctly (low, easy)

Instructional Bugs

1. Instructions aren't clear which lead to death, It says "double tap D to dash" but it should say double tap and hold to dash.(low, Easy)
2. Goal given to the player at the start of the game. (low, Easy)
3. Label the items the players are buying (medium, easy)
4. Not understanding how I gained currency
5. Certain moves are unknown to the player (medium, easy)

Suggestions

1. Should give the player to pick their own control scheme to play game (low, medium)
2. No Game Over Screen (low, easy)
3. Sword is not useful (High, hard)
4. Unable to save progress. (medium, Hard)
5. Suggestion: Allow player to skip cutscenes (low, medium)

Resource Bug

1. Already used repair kits re spawns back after death (low, medium)
2. All resources are lost when dying and returning to a checkpoint (low, easy)

Plans for Bug Fixing

This sections describes the approach and the feasibility for fixing the bugs mention in the bug section. Each bug above has a number associated with it above. The number on this list is associated with fixing that bug within its section.

Visual Bugs

1. In order to fix the overlapping of our character graphic and the wall graphics is simple. We can easily increase the size of our box collider to be larger than our player's graphic. The problem with this solution is now our box collider is larger than our player's graphic. We wanted the box collider to be smaller than the player's graphic to the player's benefit. Another solution is to have multiple box colliders that will shape the player. We can prolly have a small box collider at the right most of the shield that will prevent the player moving it into wall. I don't think that it would be possible for us however to have a 1 to 1 collision detction with the Gundam Graphic. It would take a considerable amount of work: due to the increase the number of box colliders. We still don't completely understand the ramifications of inserting more box colliders. It could tax the computer more harshly, if we wanted to change the animation state of the character than we would have to make changes to the position and size of each collider therefore increasing the amount of work a lot. Also by changing the size and moving box colliders the affects aren't clear on unity and may introduce many number of bugs. For instance, crouching in our game decreases the size of the player's box collider but that change in size sometimes allows the user to clip through objects when the box collider

is changing size. For the amount of work, there is very little value gained, we have more accurate hit boxes but most times the player doesn't even notice or cares as long as it is too his advantage.The player's collision box was never intended to be very accurate but we will attempt to add one or two to prevent character's overlapping with walls.

2. this bug is similar to the one above but harder to fix due to leg's at different height in idle animation. There isn't much of a solution here due to the difference in height of the leg. However we will tweak with the box collider and attempt to get it as close to the ground as possible
3. Set the rigidbody.simulated to false when the player dies
4. The solution to this is tweaking our box collider to more accurately represent the player. Specifically when the player is in his jump animations.
5. In order to fix there would need to be a tweak on the dash starting conditions.
6. we shall have main menus scale to the resolution size.
7. line up our background tiles properly

Player Bugs

1. crouching wasn't in our initial requirements but was added in after playing the game and feeling like it would be a fun mechanic to add in. It's functionality wasn't tested much therefor many bugs will may include in it.In order to fix this bug, in our GE animation controller had a transition from the crouching state the to jump state.
2. The sword's hit box is always larger than the sword's graphic. However tweaks to the size and position of the sword's hotbox will be made to more intuitive. The main bug that nobody seemed to address was attacks aren't interrupted on hit which causes a lot of invisible hit boxes.
3. In order to fix everything is too floaty. After the player releases the jump button the gravity scale will be increased significantly. This will allow the player to get down on the ground quicker and still be able to jump high and have control in the air.
4. back dashing wasn't in our requirement but it was a really nice addition to our game. That is why there are many bugs including this and crouching. As well as the fact, there were no instructions on them.In order to prevent this bug we won't allow back dashing when the player is in the air.
5. create a animation transition from crouching to hurt and allow movement from the crouching state.
6. Set a animation transition from crouching to walking and allow walking from crouching.
7. The intended behavior is that player can only dash attack once and when he does his movement should stop. To fix the bug, once the player performs a dash attack it should set the velocity of the character to zero and send him back to the idle state. The player should not be able to dash attack in the air.
8. set the enemy layer mask to "Ground", so know the player will be considered grounded when atop of the enemy, allowing him to jump.1
9. fixed the same as kneel walking
10. prevent shooting while crouching through boolean conditions.

Enemy Bugs

1. Find the delta Y of the player and the GE and add it in the preconditions for attacking. deltaY < 5 in order to attack.

2. this was intended at first due to the enemy exploding on death but in retrospect it is unfair to the player. There are many ways to fix however our fix is to change the rb2d.simulated to false once the enemy dies, therefore it will no longer damage the player and the exploding animation will finish.

3. All moves are avoidable the player however I will agree that the charge attack by the boss is hard to dodge. The user would have to jump early expecting the flame charge because he doesn't reach the peak of his jump quickly enough in order to dodge the attack, Also the charge isn't telegraphed enough. Its easy for me the developer to dodge because I know the exact sequence of the boss move. If the player was observant enough he would know the boss cycles between jumping 3 times, than shooting on the ground, than the flame charge but that of course is expecting too much of the player. To fix this we will likely slow down the flame charge attack and include a pre animation of charging and a time delay before the charge attack.

4. If the enemy calls an attack function the move happens regardless if they are put into hitstun. This is why so many play testers feel that the melee weapon is terrible and is trading hits with his enemy. In order to fix this when the enemy gets hit by the player it will stop all running coroutines. This will prevent the attacks from coming out.

5. two solutions, One is to increase the ledge height therefore the boss can't get stuck on the ledge. Whats happens is his hand hit box gets stuck on the ledge. Likely won't be using this solution. Another solution is we will create a an invisible wall trigger that will act like a wall. When Fire Dino jumps into the trigger his x velocity gets flipped and body graphic gets flipped preventing him from getting stuck on the ledge.

6. The enemy flickers between left and right when the enemy is on top of the player because its position is jittering switching between greater than the players position and less than its position. The fix will be to add the condition delta > 0.5 to both moving left and right. This will create a range where the enemy will not try to switch between moving left and right

7. The mass of the enemy's boss's rigidy body and it's velocity when it collides with the player sometimes the force it sends the player at is too great and the player goes through the floor. To fix this bug change the player's CollisionDetectionMode to ContinuousDynamic.

8. Spikes will no longer instantly kill the player and do damage comparable to enemies

9. in the update function set the enemies animation to idle if it's velocity.x is zero.

10. Add the tag "Spikes" to the enemies onCollsionEnter2D function and run the function enemyGetHit(spikeDamage);

Audio Bugs

1. Replace playOneShot in the sound manager with the command play.

2. This sound effect is caused by GE because his attack conditions doesn't take into the players y position . In his attack condition add of deltaY < 5

3. in OnCollision check if !isOpen is true if it is than play the gate sound.

UI bugs

1. Pause menu will be implemented in this revision. Pressing 'esc' or the pause button in the Unity development kit. It will set the Time.scale to zero and enable a UI game menu.
2. Write the function endGame()Application.QuitGame() Attach that function onClick() to the exit button.
3. we shall have mini map scale to the resolution size.
4. Not all levels implemented yet, When they are finished they will send you to the correct level.

Instructional Bugs

1. Change text to "double tap and hold D to dash". Since we are now using the Unity development kit for controls the text will have to be dynamic so we have use the keytag.ToString().
2. It isn't necessary to tell the player the goal of the game at the start of the game. The player will learn about his goals while playing through the level. However we will be adding in coins to the game, that give the player scrap, but is actually a path that will guide the player to his destination and be a sub goal.
3. The names are already within in the games code just haven't created text to display it. Add in text to be displayed. However the names alone won't exactly tell the player what the item does. Description will likely be added but how that is displayed to the player is the hard part. The simplest answer is just to have a paragraph that pop ups above the player, however that will be tweaked on play test.
4. scrap is currently gained when the player destroys an enemy. An observant player would notice that easily and I don't think it is necessary to tell the player where he got his currency from. He will naturally know after playing and this information isn't important to progressing through the game.
5. Instruction will now be added for crouching and back dashing

Suggestions

1. We will now be using Unity's tools for controls simple due to the high demand for changing controls and it isn't hard to change. The main benefit however is going through the main menu using the control keys.
2. The player gets re spawned to his last checkpoint when he dies. I don't think it is necessary to have a game over screen. If we did want a game over system, we would likely introduce a life system and when it reaches zero we go to the game over screen. We don't want this because we want our players to actually finish our game and not be too frustrated from having to replay areas of the game in order to get back to where they started.
3. Sword in-game will now interrupt GE attacks and do more damage
4. A new feature will be implemented allowing the user to save their game
5. The scene has 3 dialog texts, there is no reason to include a skip on the dialog.

Resource Bugs

1. This was intended as we were attempting to make the game as easy and forgiving to the player as possible.
2. When the player hits new game from the main menu it should reset the player's scrap and repair kits and not when the player enters the level.

Bug Impact

This section will explain the impact the bug has on the player's experience, risk and likely hood of occurrences. Each bug in the "Bug and suggestions" above has a number associated with it above. The number on this list is associated with fixing that bug within its section.

1. The occurrence of this is quite likely but it doesn't affect the game play experience. Many games have graphic overlap and the player generally assumes that the wall is in the background.
2. The occurrence of this is likely but it doesn't affect the game play. The player is only slightly hovering due to the right leg being slightly higher.
3. The occurrence of this isn't that likely the player has to be moving into a hurtbox while dieing. It doesn't affect game play at all but may break his immersion and gives the game a buggy feeling.
4. The occurrence of this is medium but it doesn't affect game play much but does change the feel of their character
5. The occurrence of this is unlikely, the inputs for this are very precise and not common. The player may be confused by their graphic dashing the wrong way.
6. This affect the polish of the game
7. Doesn't affect game play but affects the player's environmental experience

Player Bugs

1. This is a bad bug and will be fixed immediately. Confuses the player and is likely to occur
2. this affects the player's experience, he may feel that the sword is useless and never use it.
3. This affects the player's pace and experience, it also limits our design space. It can prevent the player from dodging moves and make the game feel very slow because there are less options in the air.
4. This is a game breaking bug and will be fixed immediately, the player should not be able to hover
5. This is a game breaking bug, the player should not be stuck in crouching position.
6. This is a bad bug, the player should not be able to move while in crouching animation.
7. This doesn't affect game play much however melee attacks in last revision weren't very useful and we would like to change that.
8. This doesn't change the game much.

9. This is a bad bug, the player should not be able in walk animation but not move.
10. This is a visual bug which will be fixed due to being confusing to the player.

Enemy Bugs

1. this bug doesn't change game play much but it does make the enemies more believable
2. this bug makes the game harder and more frustrating for the player, further weakening the sword ability.
3. this bug makes the game harder,unfair and more frustrating for the player.
4. this bug makes the game harder and more frustrating for the player, further weakening the sword ability.
5. The boss getting stuck on the ledge gives the game a buggy feel and makes the boss fight easier.
6. The enemy flickers between walking left and right animations makes the game feel buggy but doesn't change game play much.
7. Boss hit me through the floors. This bug is game breaking and can potentially soft lock the game.
8. Spikes are way too dangerous. This isn't a bug but can be very frustrating for player's to die in one hit.
9. This is a visual bug, it doesn't affect gameplay but gives the game a buggy feel.
10. This makes it feel like the environmental hazards are on the enemies side which feels very unfair to the player.

Audio Bugs

1. If the player manages to finish the level before the first loop ends, no harm is done. This changes the feel of the level after the music ends.
2. This bug doesn't affect game play, the player constantly jumping into the door is unlikely and the replay of the audio doesn't do much.
3. This bug is very annoying to the player and can confuse him.

UI Bugs

1. If the player manages to get the player stuck or needs to go to the washroom. He can't pause.
2. Can not quit game from main menu. This bug makes the game feel buggy if the exit button isn't working.
3. It is uncommon for people to play games at 640 x 480 resolutions and screen size is still feasible to play.
4. This bug can confuse the player

Instructional Bugs

1. Can cause the player to walk into their death but they are re spawn very close to the death spot and can try again.
2. The player doesn't to be told the goal of the game, if the level is well designed.
3. The player can be very confused on exactly what the items do and may not want to spend their scrap on item's without description.
4. Not understanding how I gained currency. It doesn't matter whether or not the player knows how they got their currency.
5. The other moves aren't necessary for the player to complete the level and were work in progress abilities.

Suggestions

1. It can confuse the player when they are given the ability to change their controls on the unity start up but then those controls don't work in game.
2. There doesn't need to be a game over screen, it makes the game a lot easier and doesn't make you redo certain parts of the level.
3. this affects the overall feel of the game, A game about a combo's shouldn't have the gun as the dominant strategy.
4. The game currently is very short so saving progress at the moment is very necessary and doesn't impact the player much
5. the dialog is 3 lines which is done

Resource Bug

1. This makes the game easier by having those resources re spawn on death.
2. This makes the game harder by losing all resources on death.

Plans for New Features for Functional and Non-Functional Requirements

This section describes the functional/nonfunctional requirement of new features that will be implemented within the game. This section also explains the rational for adding them and how they fit within the game.

Features

Air Combo Attacks

Currently within the game there is already a feature that allows the player to knock the enemies within the air, the player can currently only do one air attack after the ground launcher. We would like to extend this functionality allowing the player to attack multiple times within the air. This will make the game more fun

Level Fades

Scenes must fade to black upon exiting a scene and scenes must fade out of block upon entering a new scene. This is to allow a smooth transition between other scenes and to prevent a jarring switch between two scenes.

Save Progression

The player will be allowed to save and load their game. Saving will store information regarding the player's scrap, repair kits, checkpoint, the player's level, his health, his attack, his defense stat and energy. This will likely be done by saving to a json file. This is so that the player does not have to complete the game in one sitting.

Player Re spawn Introduction

When starting a level, no longer will the Gundam just be there and the player has immediate control. There will be a spawn sequence that includes GW now being carried on a base jabber which will spawn from the left of the screen and than GW will than jump off and land on the re spawn plate. This is so that the game feels more natural

Damage Display

When an enemy or player gets damaged their will be a red text that will pop up to the corner left of the player. That text will be the amount of damage that it has taken. The text will than fade away after a second. This allows the player to see the exact damage he is doing which give the game a nice polish.

Combo Text Display

Text will be displayed on the corner right of the player when the player ends or drops his combo. The text displayed will be the number of hits in their combo. This is so that the player knows what moves are combing and can check what his longest combo was.

Enemy Tweaks

The major complaint of GE is that his attack was deemed unfair. He would attack too fast and it felt like the player was his trading life for his. Our solution will be to have the main enemy go into a pre attack animation state for 0.7f seconds. It will than remember the last position of the player. It will then move toward that remembered position after the elapsed time and it's animation will go to the end of the attack. This is to make the enemies more fair and the game more fun.

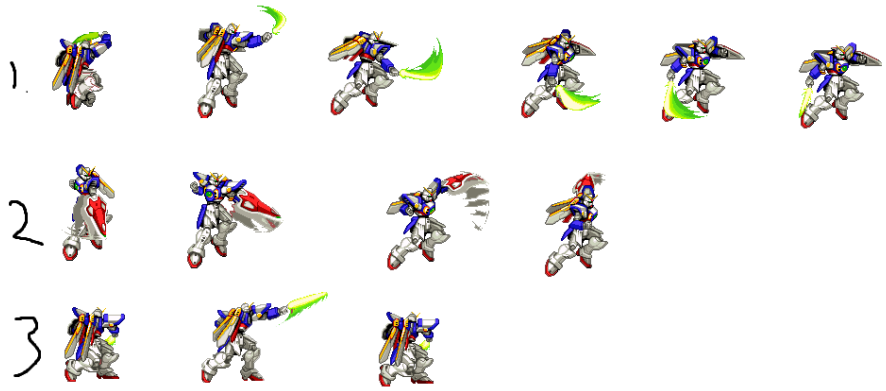
Level 2

In this revision our main aim to create a new level, that includes a well designed stage and a brand new boss. The level will be thematically designed based on the boss's character and personality. It will be his fortress. This will increase the length of the game and give player's new challenges and experiences.

New Feature Design Plans

0.1 Air Combo Attacks

The image below displays the sequence of attacks the player can make in the air. The last hit will knock the enemy away. We will create an Array of Attack[] called airAttacks which will contain our sequence of air attacks. We shall than pass that array into our combo attack function.IEnumerator comboAttacks(Attack[] attacks). Refer to player controller



Below is the planned attack data for each air attack

airAttack1

1. attackDamage = 3
2. attackCollider = airAttack1
3. startDelayTime = 0.3f
4. durationTime = 0.5f
5. knockBackForce = zero
6. hitStunTime = 1
7. animationTrigger = "AirAttack1"
8. attackSound = "Air Swing"
9. cancelTime = 0.3f

airAttack2

1. attackDamage = 2
2. attackCollider = airAttack2
3. startDelayTime = 0.3f
4. durationTime = 0.6f
5. knockBackForce = zero
6. hitStunTime = 1
7. animationTrigger = "AirAttack2"
8. attackSound = "Air Swing2"
9. cancelTime = 0.3f

airAttack3

1. attackDamage = 5
2. attackCollider = airAttack3
3. startDelayTime = 0.3f
4. durationTime = 0.5f
5. knockBackForce = 300f
6. hitStunTime = 1
7. animationTrigger = "AirAttack3"

8. attackSound = "Air Swing3"
9. cancelTime = 0.3f

Level Fades

there will be Texture2D called the fadeOutTexture which will be a black.png that will cover the player's camer. There will be a function that begins fade which will accept an int for direction. 1 being fade in and -1 being fade out. Begin fade will slowly increase or decrease the opacity of the black texture.

Save Progression

There will be a save block that the user hits in order to save. There will always be one in the Boss walkway

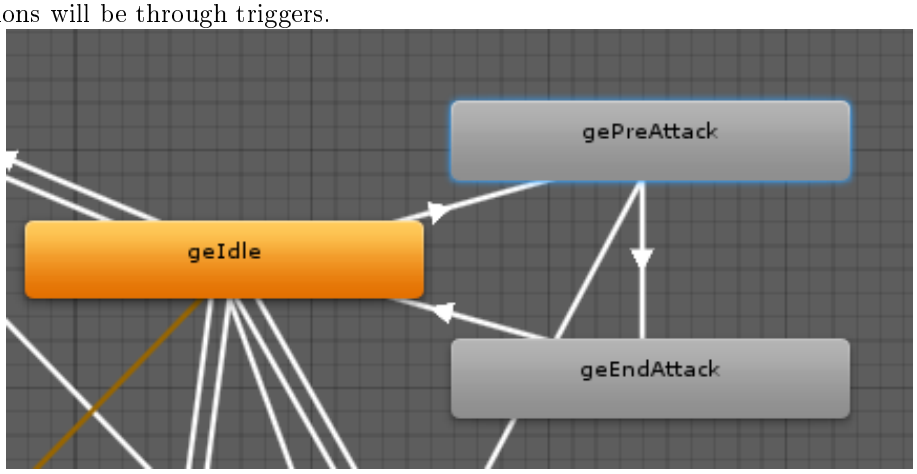
Player Re spawn Introduction

The base jabber will be instantiated off the camera than enter the scene from the left side and than out through the ride side. When the base jabber x positions is above the re spawn point the GW will jump off the base jabber and land on the platform once the player has landed on the platform. The player gains control over GW.

the player on a base jabber

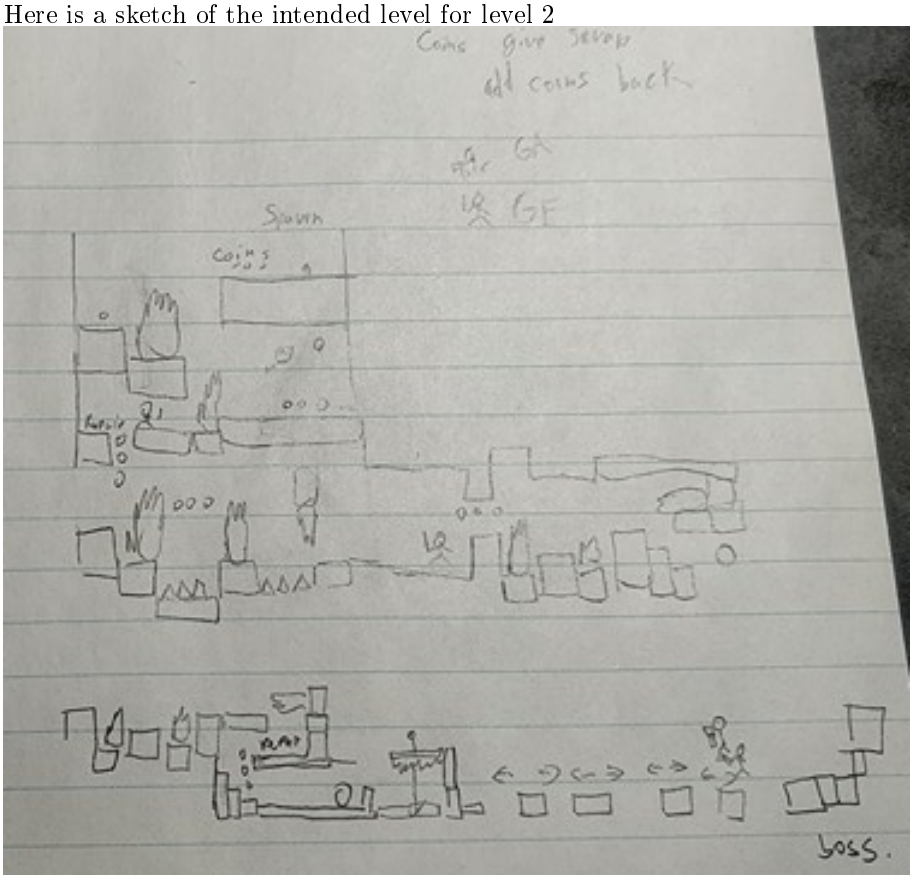
Enemy Tweaks

Enemy GE will have a preAttack animation state and a end attack animation state. There transitions will be through triggers.



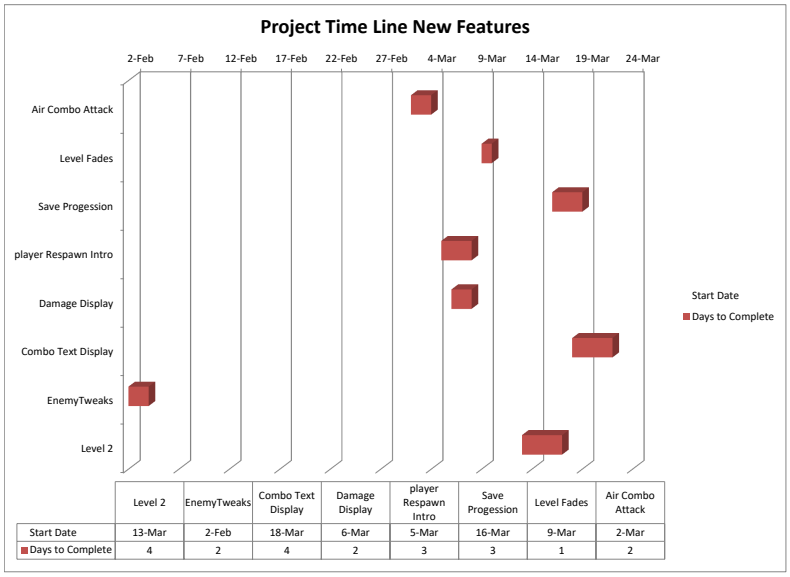
New Level

Here is a sketch of the intended level for level 2



Project Timeline

This section only contains one chart for the project time line. Please refer to ProjectTime.xlsx for more charts, the complete timeline and responsibilities.



	Level 2	EnemyTweaks	Combo Text Display	Damage Display	player Respawn Intro	Save Progession	Level Fades	Air Combo Attack
Start Date	13-Mar	2-Feb	18-Mar	6-Mar	5-Mar	16-Mar	9-Mar	2-Mar
Days to Complete	4	2	4	2	3	3	1	2