Nova LOTUS

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Change Log

Version No.	Date	Change details
4.26 1	19.10.2021	Changed Unreal Engine version to 4.27.
4.27 2	26.10.2021	Sketched design ideas on design document, created a mind map of level concepts. Puzzle idea created, pngs made to apply onto a material later. Began basic level outline in Unreal Engine with cubes to create an estimate of how the space would be in the first area and hidden passage.
4.27 3	19.11.2021	Imported assets, replacing large blocks for better visual effects. Set up basic lighting in the scene. Started build on the second area, created placeholders for destructible items, environmental assets, traps.
4.27 4	30.11.2021	Finished initial arena design, structure of passage and second area improved. Added a spike and parkour trap as one of the paths through the passage. Built a basic puzzle and door system to open the door to the hidden passage, however, there are a few issues with the puzzles rotation. Added flowers and steppingstones into the passage to add lighting accordingly. Lighting colours adjusted to the colour desired on the flowers and on the fire podiums.

4.27 5	20.12.2021	Finalised design for the passage. Steppingstones and spikes trap set in place with blueprints. Fixed the puzzle and door system. Created a blueprint for the passage to be closed as the player goes in. Created 2 checkpoints with blueprints, one for the first room and one for the passage, so when the player dies, they don't get locked outside of the passage. Made widgets for the timer and health system, linking the health system to the traps so the player either loses health in percentages or instantaneously.
4.27 6	21.12.2021	Added another trap into the passage where the player must jump onto the correct platforms to prevent dying in lava. Added a box collision for the lava. Made the floor destructible when stepped on. Placed in multiple destructible vases into the second area. Fixed issues with destructible meshes shattering in a large radius. Lowered all destructible meshes chunk threshold. Created a second floor in the second area for the player to look for collectables. Set up an unlockable/fixable door with collectible items for the placeholder portal.
4.27 7	26.12.2021	Redesigned and started creating the third area on the game. Initial water plan idea lowered frame rate. Created the double jump ability. Attempted making a fire sword swing ability. Hid collectible items in the destructible vases. Made multiple UI notifying the player what to do, such as interaction, hints to puzzles, path direction. Placed a glowing fan in the first area so the player triggers a camera rumble for a sense of urgency. Made the portal to teleport the player to the final area. Created a particle system for the portal, fire, dust, leaves and fireflies.
4.27 8	3.01.2022	Moved particle systems to assigned locations. Created a fireball ability instead of initial sword ability and set up the abilities to be a glowing power up. Made two blueprint notes for the first puzzle that the player has to decode in order to progress. Set up two mountains that forces the player to use their abilities to get past in the third area. Box collision created to keep them hidden, so it seems as if they are close to the end of the game. Made destructible bamboo blocking the final exit. Added destructible rocks on the movable mountain. Began playing around with cameras and cinematics.
4.27 9	06.01.2022	Made a parkour section to the final portal that moves in with the triggerable mountain. Removed destructible bamboo and rocks as the debris would collide into others and triggering them instead of the player.

4		Created a death room for a death scene. Made the credit scene with a cinematic camera, hid the wall blocking the passage, as well as the abilities while the camera moves through. Used assets found online to make a 'you win' and 'game over' text screen. Filmed the death sequencer. Lowered the lighting over time and made the text appear. Fixed issues with the timer not ending at 0 and playing the death animation. Created a blueprint where the player passes through in the final portal for the final credits to appear. Fixed issue with the death scene overlapping the credit scene as the timer is still playing. Attempted to add audio into the game.
4.27 10	19.01.2022	Added a different sky for the final area for a dark and gloomy appearance, a change in environment. Added a beam of light landmark that directs players to the portal that will transport them to the final area of the level.

Introduction

Context

Nova LOTUS is a fantasy level where a player guides the character through a passage and different areas in an attempt to stop the world from destruction caused from a special quest item that releases magic across the land. Beneficial abilities must be acquired to succeed in this level. The player must react quickly to unlock new areas in the level in order to proceed, through following hints and clues given. Once the player unlocks the second room, they must proceed through a portal in which transports them to the final section, which appears simple, but the environment begins to shift and block the exit.

The level is designed for players who enjoy puzzle, fantasy and adventure games.

The main inspiration from this level has stemmed from 'Spirited Away' and 'Howls Moving Castle', animated films produced by Studio Ghibli. The aim was to capture the connection with fantasy and magic without actually using magic, through colours, assets and environmental structure. Building and environment architecture within both films influenced asset placement. The colourful shooting stars In Howls Moving Castle directing the character to a location inspired the hidden passage guidance and puzzle, instructing the player where to step safely. The parkour segments of the level have been inspired from 'Spirited Away', where the main character walks down some dangerous stairs that look unsteady and break.

The level would be implemented into a larger game with other levels through the connection of the quest item, and symbols given in the first puzzle. The player would initially believe that collecting this item will free the land chaos, but in fact, does the opposite. The game would have the symbols given on the note subtly floating around in areas with collectable abilities. If the player notices the order of the symbols throughout the game, they would be able to use them to unlock other secret areas and more information about the goal and why the people in the game are trying to get the player to obtain it.

High Concept:

The level is a puzzle and fantasy level where the player must decode puzzles and face challenges in their quest to escape their imminent death, all within 4 minutes.

Level Design

Visual Style:

FIRST AREA

The overall graphical goal will have the assets and character appearing as realistic as possible. The initial room design the player spawns in must somewhat reflect an east Asian garden architecture where the cherry blossom tree has details of the flowers being blown gently by the wind caused by the weather change as the fan is collected. The fan will have an iridescent luminescence to it, bright and colourful enough so that the player feels compelled to pick it up first thing. As the rocks are rotated for the puzzle, the sand around it should not move independently to the rest of the environment and blend in smoother with the grass. The texture of the mountainous surroundings should look rough and rigid to contrast with the softness of the interactable area. Foliage in this zone sound be enough that it covers up the ground around the trees, except from the plant covering the second letter. A couple of leaves should cast a shadow over the note where it is noticeable enough that, if the player searches properly, it is visible. The sky sphere design will consist of stars with a warm toned colour at this this stage.

PASSAGEWAY

The lotuses scattered around in the passage will have a glow to them depending in the colour assigned to each one, where it is still easy to see the detail. To aid people with colour blindness, some subtle differences such as larger leaves on blue flowers should be implemented. Podiums for lighting along the passage will consist of symbols like the ones on the note for decoding, each one having a different symbol that links them all to the portal later on. Foliage in the passage should be decently scattered since plants will naturally have difficulty growing in caves like this. The colour palette of these will be more orange or tan to resemble death, as a sense of foreboding. No other small flowers should be designed in the bushes/grass patches. Small sections of moss will be found in cracks of the walls in the passage. Cobwebs will be designed and placed in the corners of the ability sections, for example, underneath and on top of the platforms by the double jump ability, and on the sides of the podiums by the fire ball ability. Both ability pickups will be different icons but have the assigned colours. The fireball ability will be a sphere with particles moving in a circular motion at rotating angles, with the particle tail fading as it moves. The double jump ability will be a flashing Niagara that moves upwards, and disappears for 1 second, then flashes again to catch the players attention as it is a vital ability to progress. Lava will appear to be bubbling and popping below the player when the floor collapses, with some bits of it jumping up. The flow should move slowly in the direction of the level progression and move around the pillars the player can land on.

SECOND AREA

Vases that are scattered around the area will be hollow in the centre so when destroyed by the player, the debris is less chunky and gives the illusion that the collectable items to fix the portal are inside. The design of these should be similar to the cases from the Edo-Period in Japan. Pathway leading out from the passage to the portal will consist of larger steppingstones with smaller stones around it, so it connects to the passageways theme. The sky now will have lightning and become greyer and consist of fewer stars. Due to the change of weather once again, it begins to rans and the wind picks up a bit more, causing the bamboo shoots to sway slightly and the cherry blossom tree to scatter more petals. The fireflies by the small pond will visually appear more realistic and the water shall reflect them. Once the collectables have been placed into the portal wall, the structure that is blocking the portal entrance will fall once by one, revealing the portal. Collectables will be 4 of the symbols from the first area that can be placed into the portal structure to fix it. These glow when placed.
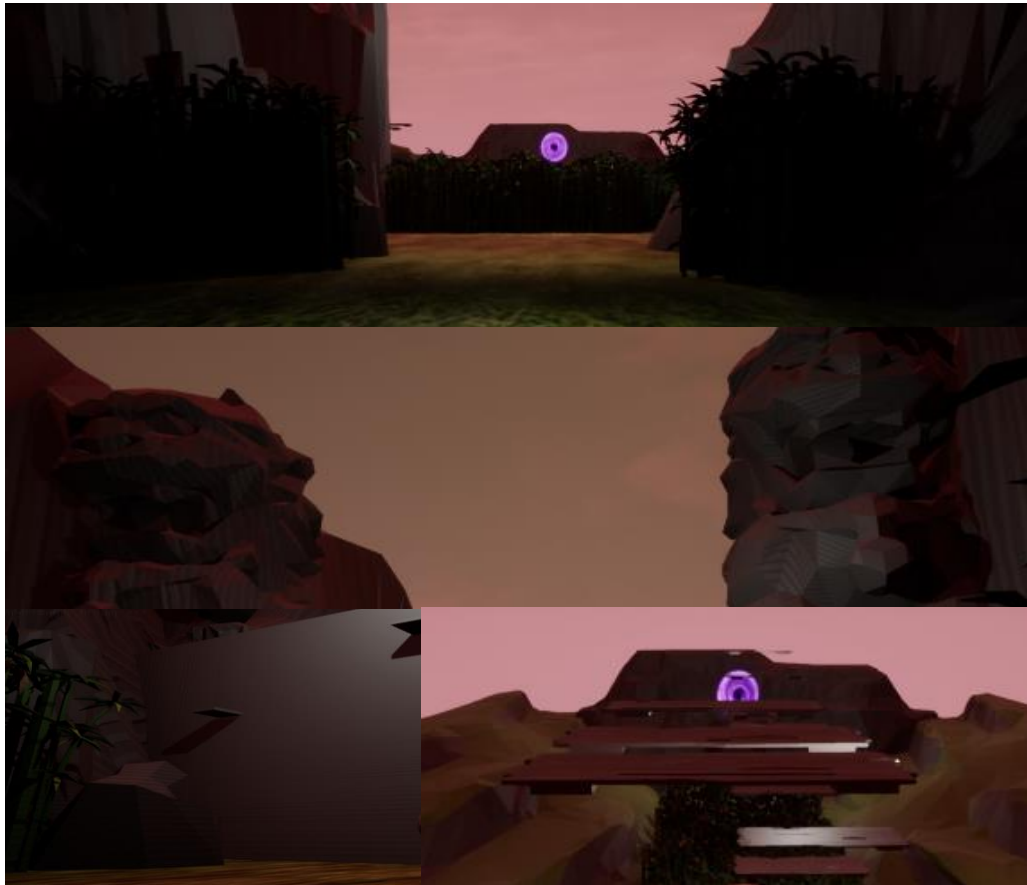
THIRD AREA

Foliage appears thick, mountainous areas are rough and rigid, however there should be no parts where the player could possibly climb up yet. Once the environment shifts, the cliff side where the player can climb should have small ledges that are only climbable with precise movement. In replacement of the lion statues, two Dōsojin Statues will be facing the player as they come towards them. These have been chosen as they resemble protection for travellers, contrasting to the foreboding death in the passage. The wooden platforms will appear to be made of mahogany and have multiple cracks in them, making them look unstable. This will make the player more nervous as platforms have broken before. Empty areas that are visible to the player when on the wooden platforms should be replaced with a mountainous environment with temples in the distance.

Level Design Theory:

Some level design theories that have been included in this level are flow and structural patterns. The design for the passage has two separate paths, one which is a simpler and the other is more difficult with a high risk of death. These theories can also be seen in the parkour aspect in the passage and in the final area to get to the exit.

There are different paths the player can take through the secret passage such as the parkour path where the player can obtain the double jump ability, or the simple path where they can collect the fireball ability. Design theories that are additionally included in this level are explicit, implicit and emergent theories.

Implicit and emergent design theories are used to tell the levels story. Examples of implicit design theories in the level are the shaking of the world as the item is collected, the traps in the passage, such as the surprise lava drop, and the portals. The player does not need to interact with the environment to understand what is happening. Additionally, the timer built into the level creates a sense of urgency to be aided with the shaking of the level. The emergent properties of this level are the portal fixing puzzle where the player must search and find collectable items to fix the portal, interactions with the portals and the player abilities. All of these are required to progress through the level, in which at the same time, tells the story in more detail.

There is a level theory of producing surprising elements or encounters which have been included in this level, when the world rumbles, the floor collapsing and revealing lava below, when the player gets transported to the final area and when the mountain closes the passage behind them.
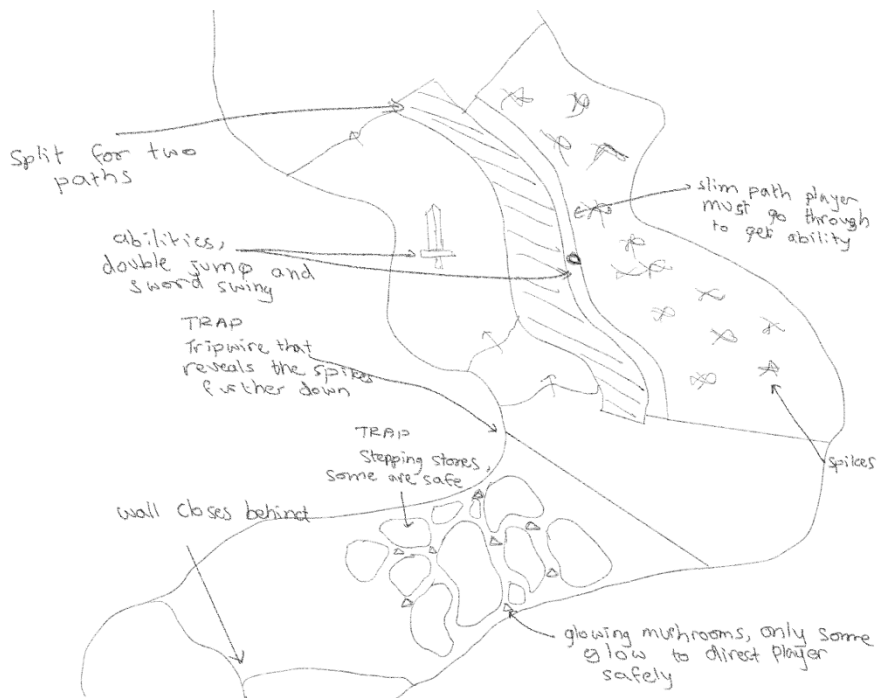
Maps:

This level consists of 3 areas: the special item collection room where the player must figure out how to access the secret passage, the passage where they must dodge traps and collect abilities, the second room in which they are required to destroy vases to collect items to fix the portal to the third and final room. The initial level design and the final design is as follows:

Area 1: initial and final design
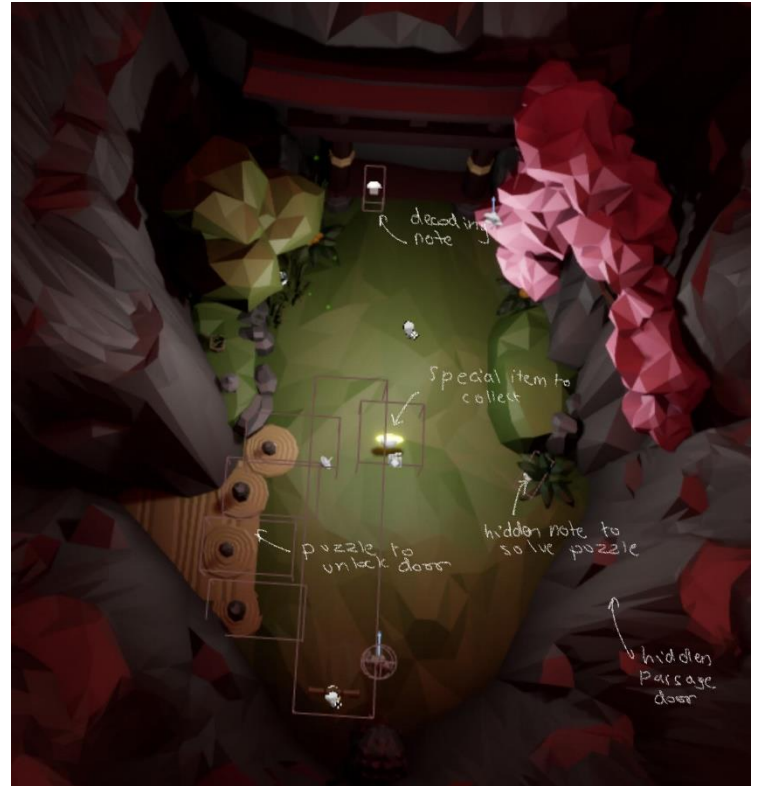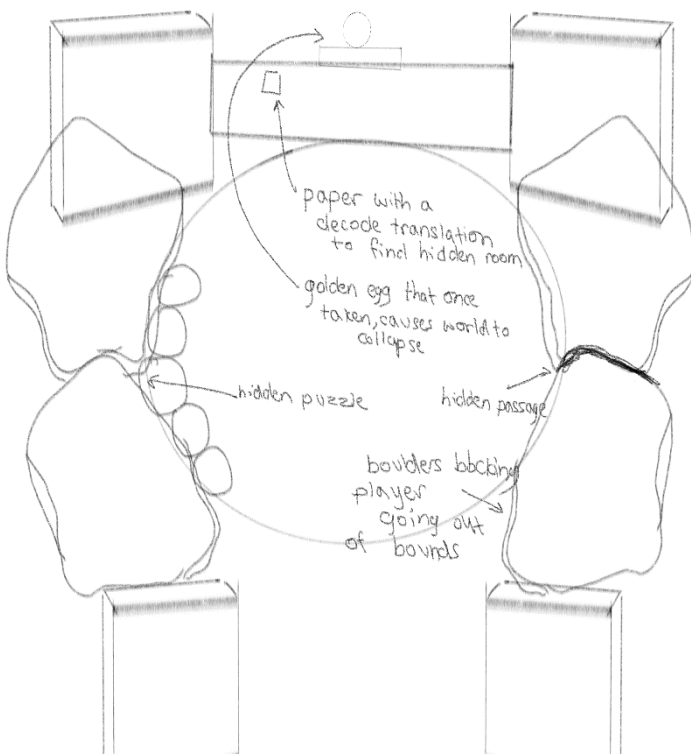
Its initial design consisted of a golden egg that would be sitting on the table in front of the player but was changed to a glowing fan as it draws more attention. Foliage was added later in the final design to create a more aesthetically pleasing appearance rather than just rocks and mountains. The puzzle remained the same.

Split for two paths

abilities, double jump and sword swing

TRAP
Tripwire that reveals the spikes further down

TRAP
Stepping stones, some are safe

wall closes behind

slim path player must go through to get ability

Spikes

glowing mushrooms, only some glow to direct player safely

floor that falls and reveals lava

path split

fire ball ability

parkour to gain the double jump ability

stepping stones

glowing flowers that are different colour

The hidden passageway: initial and final design

The initial design for the passage was to have more of a curvature to the next zone. The first trap remained the same, however rather than using mushrooms, I decided to use lotuses instead as it fit the Asian theme. The had been changed from a sword swing with magic, to a fireball instead as it seemed to be a better idea to add a more mechanically unique aspect.

Rather than having a consistent path the player can walk on to avoid the spikes below, I decided to create platforms the player has to jump on it make the level more difficult and interesting.

Finally, instead of adding a trap wire that revealed spikes, I created a lava pit where the floor collapses upon collision as it adds more of an element of surprise.
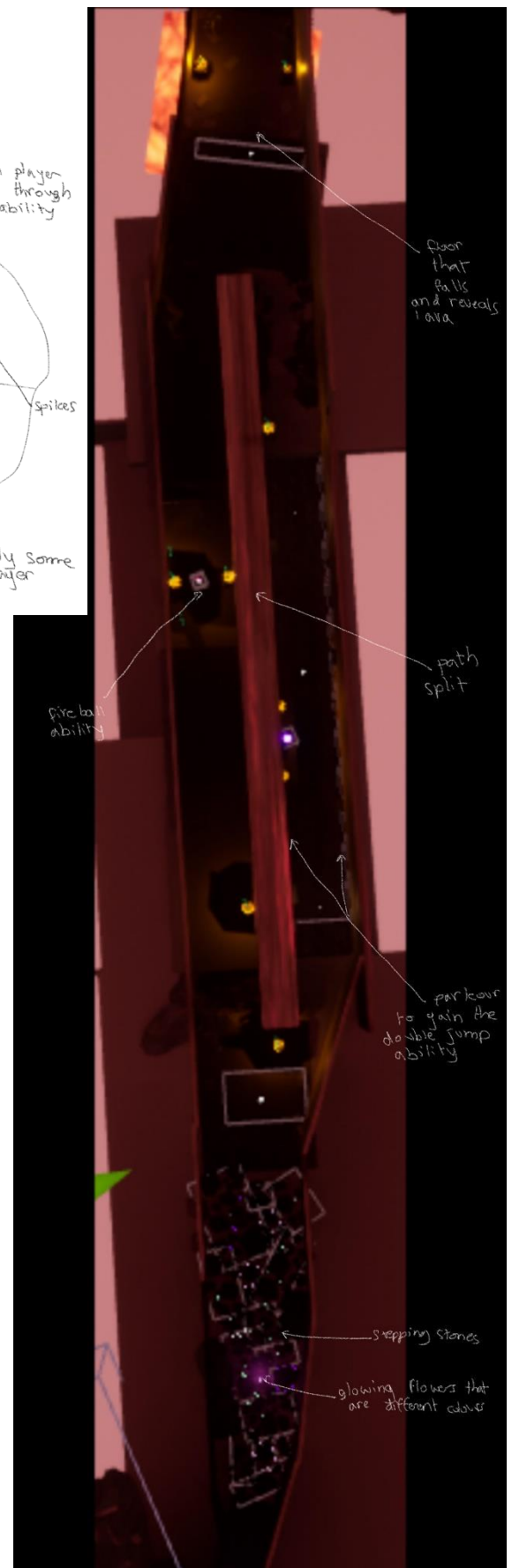
Area 2: initial and final design

The portal in the first design would be connected by a bridge the player had to go over in order to place the collectables to fix the portal. Upon designing, the bridge collision caused the player to slide back down, and to fix this issue, the portal was placed in the same area but has cracks in it. More foliage was added as well as vases around the area to make the search more difficult and time consuming.
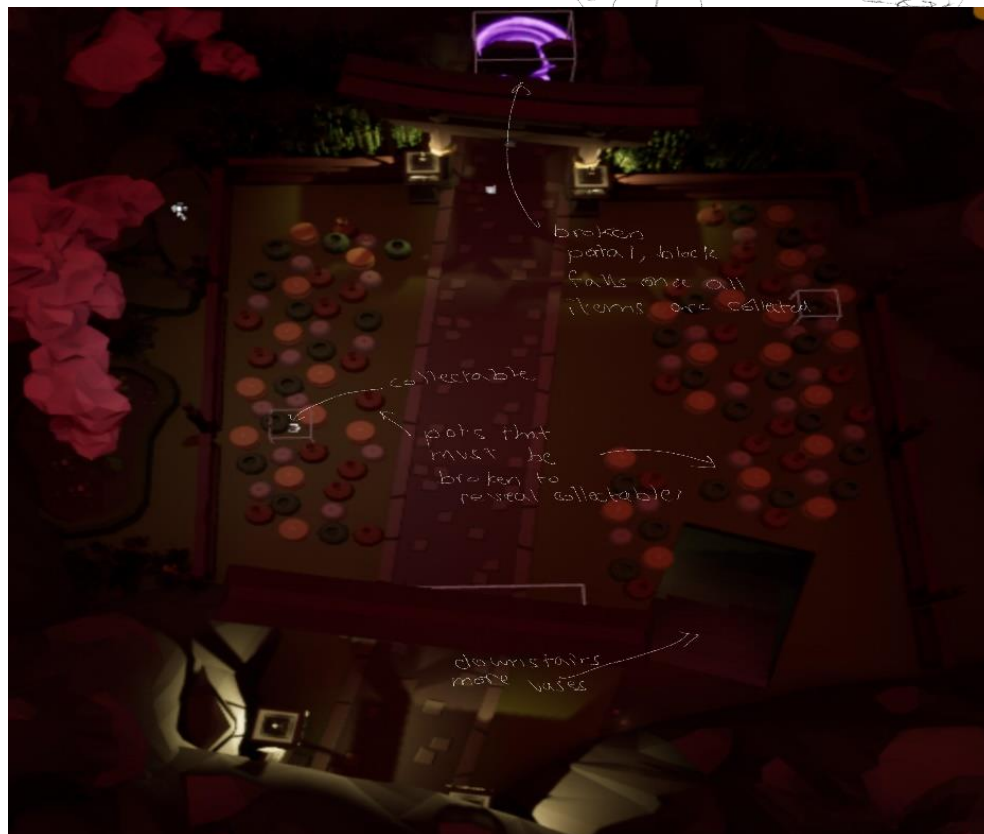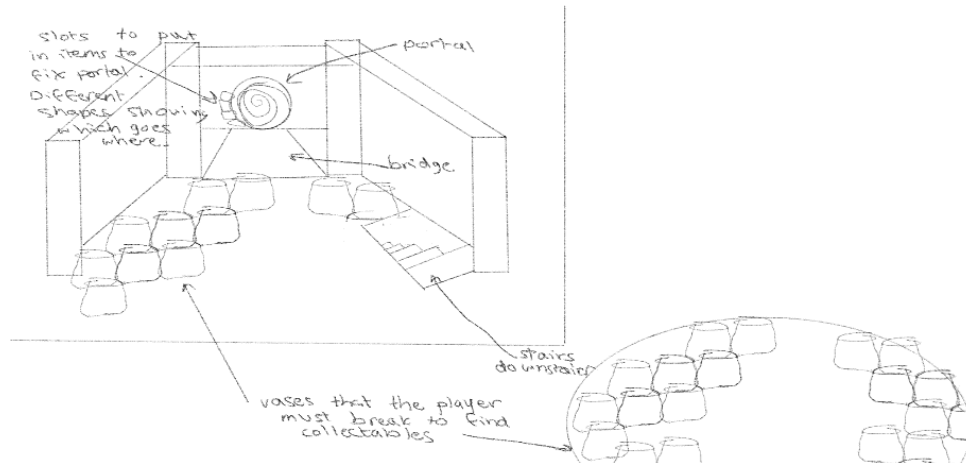
Area 3: Final design

An initial design was not created for this area as the idea was to have the ground to be completely water and have the exit far off in the distance while enemies came towards the player. Water was difficult to imitate upon design, as well as artificial intelligence as it is time consuming. In the final design, the mountains move in front of the player to surprise them with the fact that it is not an easy way out. Bamboo shoots were placed below the parkour path so when the player falls, they die and get sent back to the checkpoint rather than being stuck.
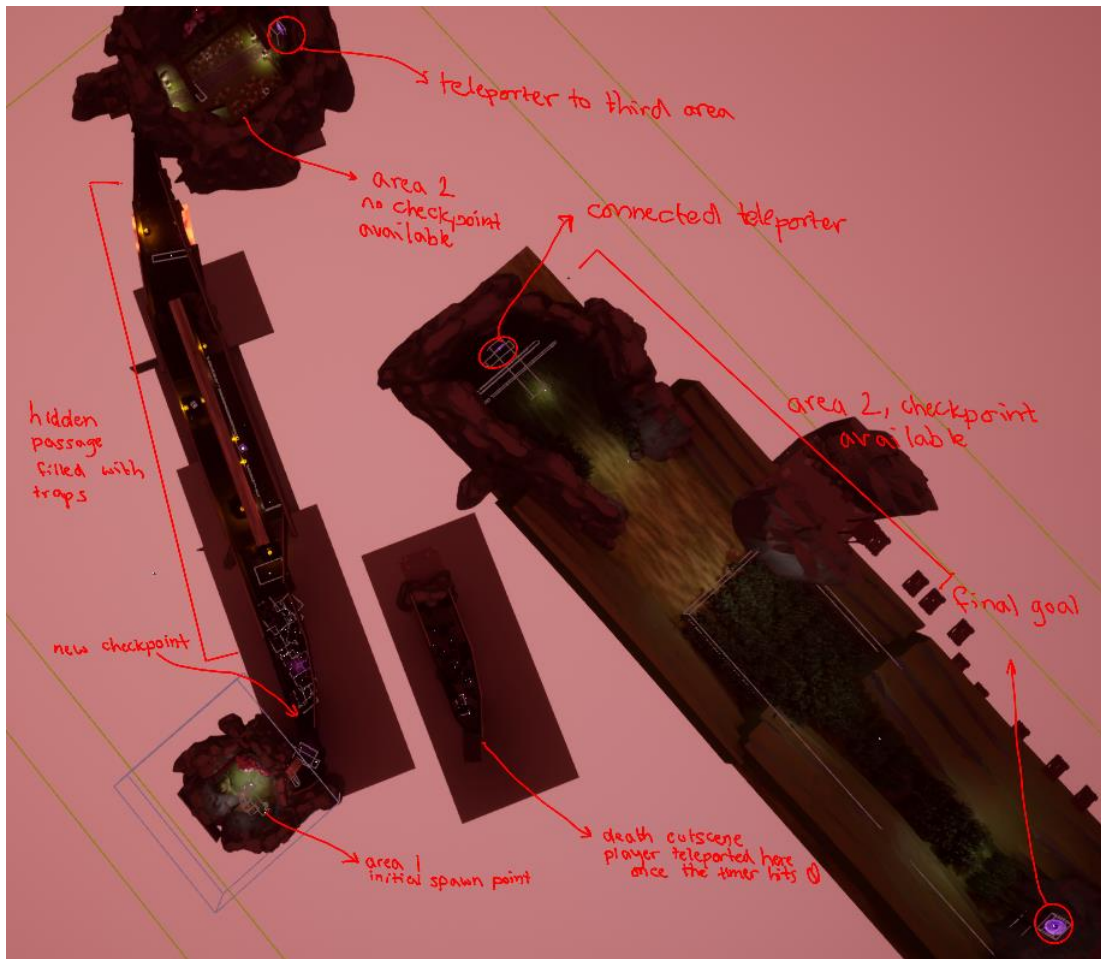
ITEMS OF INTEREST

Items of interest are located in area 1, area 2 and the passageway. These items are essential for level progression, highlighted with a green circle on the following images:

EXPECTED ROUTES

The player has three options given in the passageway: either follow the expected route by collecting the double jump ability first then collecting the fireball ability, collect the fireball ability first then collect the double jump, or collect one of the abilities and progress. If the player decides to not collect the double jump, they will inevitably lose the game as it is a required ability.
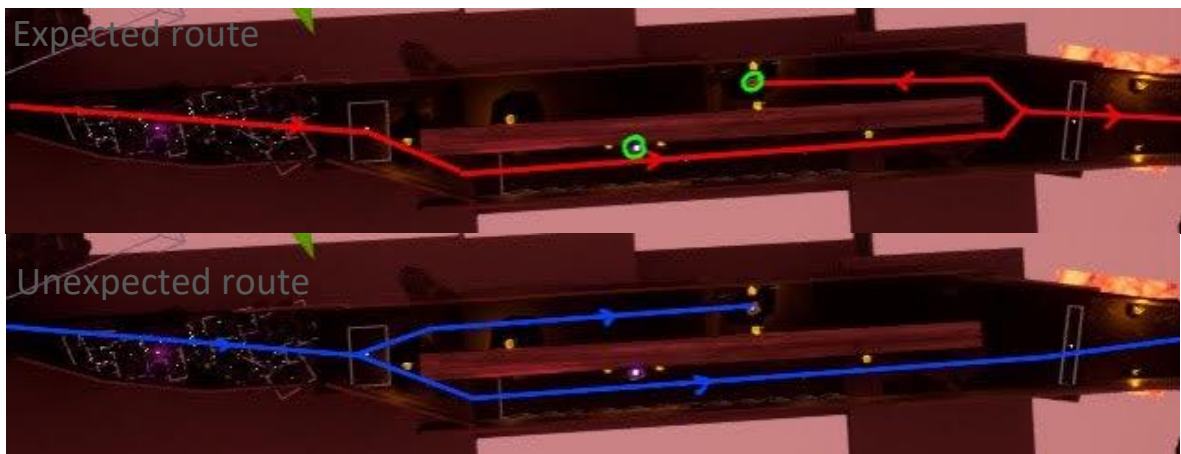
In the third area, the player must follow the route as shown in order to win, else they will fall and lose the game.

ABILITY REQUIREMENTS

These areas are where the double jump ability and fireball ability is needed to pass the level. Within the second area, fireball should be used to shatter the vases faster in order to locate the collectable items. The double jump is a required in the third zone. The player must use double jump to overcome the two initial obstacles that emerge from the environment, and when attempting to get across to the final portal.

Gameplay
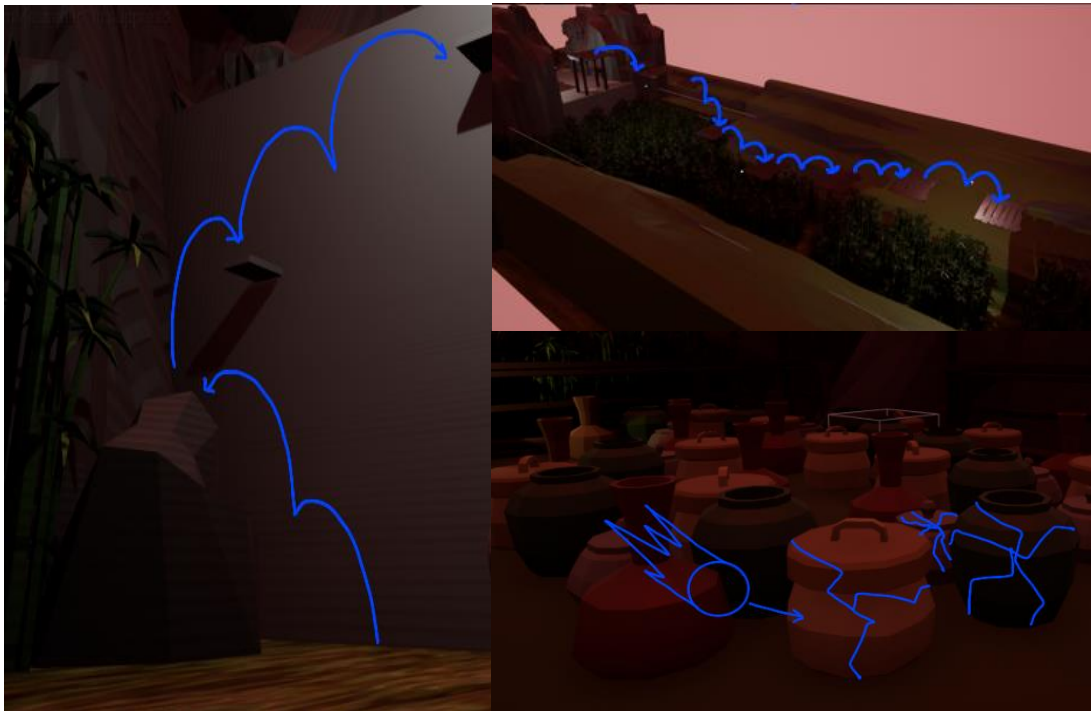
Narrative:

The player is spawned in, they are presented with a glowing fan that compels them to pick it up, however, as it is collected, a sense of urgency and fear develops as the world rumbles as the unknown approaches. This is the moment the player wonders what to do next and begin searching the area. Discretionary messages appear on screen to let the player know how to interaction with items and the environment. Upon interaction, a sheet with symbols appears on the screen with symbols and numbers. As it is clear that there is something to decode, a search of the area reveals a note adjacent to the sheet on the table with decoding information. Pressing E on a rock causes it to rotate. They rotate the rocks to the correct number of times, revealing a hidden passage behind them.

The player can see as much of the passage as is visible to the character, determined by lighting and line-of-sight. Areas not brightened by light sources consist of little to no vital information to proceed. The passage becomes sealed behind the player as they walk further in. Text appears directing the player to some glowing flowers. To their left, they can see 5 flowers lined up with differently assigned colours, pink, blue and white. A large section ahead has multiple flowers and steppingstones. If the player steps on areas where the steppingstones are not surrounded by the colours in order at the front, they lose 25 health points, whereas they are safe if they land on the correct stones. Upon death through steppingstones, they are respawned at a checkpoint by the flowers, lit up by a cross. Once the player passes safely, they are given two paths to go through. Dialogue indicates they should go through both before attempting to leave the passage. The right path appears to consist of platforming to a glowing gem, however, there are spikes below. If the player cannot platform successfully, they die instantaneously and respawn by the checkpoint. As the player collects the ability, they have unlocked the double jump ability. Pressing Spacebar twice will reveal this ability. Proceeding left results to an easier path with a red glowing gem, which identifies itself as a fireball ability. Left clicking after obtaining this ability reveals the fireballs shooting off the player which can help destruction of items. As the player continues through the passage, a warning appears on screen, explaining the ground looks unsafe and that they should proceed carefully. Upon collision, the floor collapses and there is lava below. The player can see the only way across is to land on the pillars. If the player falls, they die and respawn at the start of the passage.

Assuming the player escapes the passage, they see an outdoor area with multiple vases and a broken portal. Walking up to the portal reveals that it needs to be fixed with collectable items. A quick run around the area reveals that the vases can be broken. The player can use their fireball ability to destroy the vases faster than running into them. The vases shatter and only some uncover an item that can be interacted with. A text displaying how many the player has collected reveals itself at the top of the screen. As the player collects all items, they return to the portal and interact with it to fix it and proceed through.

The portal transports the player to a new and final zone. The player can see that there is a lot of open area to the final exit at the top of the mountain but seems there is no way up. When they move forward towards the portal, the environment behinds to shift and obstacles appear. Using their abilities, the player is able to overcome the first obstruction. The second structure has platforms that the player must

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climb. As the player arrives at the top of the cliff, there are wooden structures that can be landed on towards the portal, however, the possibility of falling is very high. If the player does not make the jumps to the next wooden structure, they will be respawned to the start of the area. Once the player arrives at the portal, a final cutscene showing every area that they have been through plays and shows a win text.

If the player cannot complete the level in the given time period, a cutscene of the flowers from the passage dimming in light, and a game over text will appear and end the game.

Puzzles and Obstacles:

HIDDEN PASSAGE DECRYPTION (AREA 1)

There are rocks on the left of the area that are rotatable. On the table, adjacent to the player when they spawn, a note is on the table holding information about symbol translation. A similar note is hidden away underneath a plant opposite to the rocks.

⊤ ⋖ ⊨ ☼ ⌘ Đ ★ ɷ Σ
1 2 3 4 5 6 7 8 9

The solution to this puzzle is to connect the numbers to the number of rotations needed for the rocks, each rock order is linked to the second notes order. Rotate the rocks using E to interact with them. The first rock should lock at 6 turns, second 3, third 6 and fourth 2. This uncovers the hidden passage.

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COLOUR CODED LOTUSES (PASSAGEWAY)

The coloured lotuses that the player needs to follow is provided as soon as they enter the passage to the left. Ahead there are multiple lotuses scattered around steppingstones, all of which have multicoloured plants surrounding them.

The solution is to use the colours seen on the isolated flowers. It is safe for the player to jump onto the steppingstones that are surrounded by coloured lotuses in this order: pink, blue, white, pink, pink.

SPIKE PARKOUR (PASSAGEWAY)

An ability is in the middle of the pathway, however there are small ledges and a large spike drop. The player must carefully jump onto the ledges without falling to their death to get the ability. Once gained the ability, they will need to use it to get to the other side.

LAVA DROP (PASSAGEWAY)

The floor appears to be unstable and collapses as soon as the player steps onto it. They can proceed by jumping onto the pillars scattered across the area to get to the next destination.

BROKEN PORTAL (AREA 2)

Opposite to the exit of the passage there is a broken portal. Upon getting closer, it suggests that there may be items around that need to be collected in order to restore it.

The solution is to destroy all the vases until collectables are visible with the fireball ability. Obtaining all 4 collectables will fix the portal, allowing access.

ENVIRONMENTAL MOVEMENT (AREA 3)

The player has been transported to a new area. The environment shifts to obstruct the player from the final portal. They must use their ability double jump to get over the first rock, then climbing up the cliff.

PLATFORMING (AREA 3)

There are multiple wooden platforms that lead to the exit. Some are too far for regular jump. The ability double jump must be used here to avoid falling into the bamboo and dying.

Player Abilities:

The abilities in this level are a fireball ability, and a double jump, which are introduced in the hidden passage. These abilities can be easily seen by the player as their current assets are glowing blue and red gems, blue being the double jump and red, fireball. Once acquiring the double jump, the player must use it to get out of the spike trap zone by landing on the platforms that are spaced out enough where it is not possible to jump once. The fireball ability is required to destroy the vases in the second area to search for the collectables. Using this will shatter the vases faster and save time for the final zone where precision is vital.

The final area has been based around the double jump ability. The player must overcome obstructions by using the ability and jump onto each platform without falling. By this time, they would have 1 minute or less to complete the level before the game is over.

Desired player emotions:

Throughout the level, the players emotional expectation is to feel anxious and have a sense of urgency. Despite the fact that the environmental design goal is to seem peaceful due to the nature of Japanese architecture, the countdown should cause the player to pay attention to what they are doing and reaching their goal. The matinee camera shake at the beginning of the game mimics the effect of an earthquake, and by not displaying what is coming or has been caused, triggers the player to create an image of something coming after them.

The secret passage allows a moment of calm as they are in a confined space, however the lighting generate an eerie feeling. Due to the multiple traps, they player is to feel on edge. A sense of freedom and curiosity should rise when escaping the passage into the new area. After

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investigating the portal, realisation that there are multiple vases above and below, panic to find the collectables should occur as time runs out.

Frustration after searching for the items to fix the portal dissipate into stress as the player discovers they must climb and platform their way to the exit with precision, else falling and losing the game. Once achieving contact with the final portal, relief would be expressed as the cutscene plays out.