

Executive Summary

This is a summary of our report. We begin with discussion of the game's core designs, under the **Game Designs** section, including game's vision/core gameplay element, followed by an overview of the premise, architecture, and basic mechanisms of the game just for a brief re-introduction of our game to the academia. Further along in the report, we will expand on more details of the game's features. Both core or optional features will be summarized in a separate section of their own under **Features Summary**. However, they will also be mentioned in the subsections **Gameplay Overview** and **Gameplay Description**, where every key element, unique feature, and interesting idea we have about the game will be listed in detail, with the core features/features already implemented discussed at the top of both sections. At this point the reader should get a grasp of how our game is similar to the premise stated in our proposal, as well as how our concepts have evolved and developed with the aid of concept art/game screenshots. Next we will go over the more contingent portions of the game, including target audience and platform, why we think this game is suited for the targets, and other minor mechanical/aesthetic descriptions such as controls, rules, winning conditions, game characters, setting, backstory, and media list. Finishing our discussion of core designs, we will delve into the more concrete field of testing under **Development Status**, where we can see specifically how the game progressed. We will log which features have been implemented, list the features we will need to implement for the final product, and which features we will hope to add in if we have time as "fancy" features but not integral to the game. We will record both problems from our own test runs, and feedback from other users on all aspects of the game, including graphic, control, gameplay, sound, and animation. We will analyze and learn where our strengths and weaknesses lie and continue doing "the good" and try to mitigate/path "the bad". Based on both our vision and the feedback from users, we will develop a plan under **Milestones**, of how we plan to move forward with our renewed understanding of our game, and how we should optimize our time to hand in the best possible product by the deadline.

Game Design

Vision

Shadow Maze is like Slender Man + Metroid in a post-apocalyptic premise on an alien planet. The player is thrown into a post-apocalyptic labyrinth, lurking with monsters and hidden traps, while the player must try to find the exit to escape. The player is handicapped with scant resources/aids, including lack of light/field of vision, surprise traps that penalizes the player with death/injury should they fall into it, and complex minor goals such as turning on a power generator to provide power for the lamps. The world is frightening enough for players to be "put on edge" as they play, but is also intriguing with its mysterious backstory (provided by various cutscenes and readable material) for the player to be motivated to continue. A *novel idea* will be "**light**", which is a scarce resource the player will need to find and manage as part of the puzzle. The light is aesthetically good-looking, and should convey a feeling of "hope" in the player because it is an aesthetic juxtaposition with the ruinous environment around

them as well as help for the player to achieve their goal by providing vision. The controls should be simple and easy to maneuver. The obstacle comes from “not knowing what lies ahead”, so they player cannot act recklessly and explore every area without thinking, but rather they will need to move forward with extreme caution and alertness to avoid an untimely death. For example, they will have to think about a potential consequence if they take a step forward (as they can’t see ahead clearly under normal circumstances), turn on a lamp (as it will attract monsters), and if they do fall into a trap, they should try to remember where it was so they can avoid it in future playthroughs. There is additional emphasis on sound and music to enhance the alien, atmospheric feel.

Figure 1.1 - Example of light on vs light off in-game





Gameplay Synopsis

Uniqueness: Player is surrounded with hidden traps so they cannot act recklessly like in an action platformer and must think about the consequences of every step they take. Light resources are like a double edged blade as it attracts monsters as well as provide vision. Players must think strategically in the timing of managing light resources and knowledge of surroundings to maximize their chance for overcoming obstacles in the labyrinth.

Mechanics: Player controls a character avatar with simple WASD controls. They can run, duck, and jump. Despite the simple controls the player should get fairly skilled as they might have to react quickly to events such as traps and monsters by running away, or maneuver the character with a series of well-timed movements to get past a monster.

Setting: An alien planet with an apocalyptic setting. The world before the apocalypse is akin to a steam-punkish-fantasy setting, and the design aesthetics should still be somewhat evident albeit with a ruined outlook.

Look and feel: 2D graphics, but light is reflected on graphic tiles in a complex manner and light angles should shift like real light on smooth surfaces as the player moves. Complex use of light and shadows to portray a more realistic and surreal atmosphere.

Target Audience and Platform

Audience: The horror and suspense elements of the game tends to a more mature audience, although overall the game contains only mildly disturbing elements, so it is suited for the

young adult age range. The depth of the story also caters to young adults, as it touches on some sensitive topics such as death, calamity, disease, captivity and consequences of recklessness in gameplay, but is simple enough to be understood by a teenager. While the UN defines the 'youth' age range as 15-24 years which is a good age range for our target audience, our game should be simple enough to play for a demographic that is slightly younger than 15. There is no specific gender or country that we aim for in our target audience. Anyone who is fond of mystery, puzzle or suspense should enjoy the game.

Platform: We aim for our game to be released and played on the PC through game apps like Steam. We choose PC because it is accessible to many of our target players and easy to port. It is also fairly easy to gather a wide range of feedback for improvement and version updates on Steam than console players.

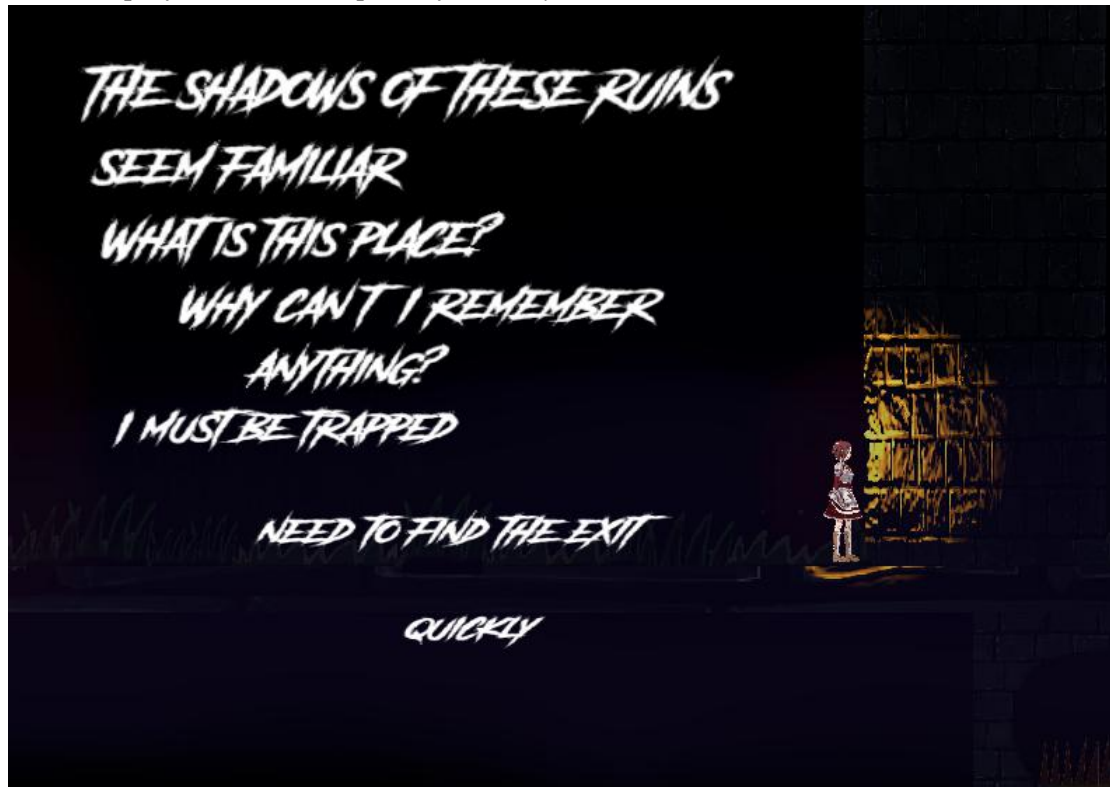
Gameplay Overview

The player will try to get to the exit in each level to progress to the next map. They will control a character and avoid the monsters and traps that are rampant in the labyrinth. The key point of the game is that the environment is nearly completely dark and so the player will have to be careful going forward, they must be ready to dodge monsters and traps thrown at them and use the tools at their disposal, such as lamps. More difficult objectives and complex maps will be imposed on the player as levels increase to provide ample challenge.

Gameplay Description

The game begins with the player's character waking up near a crumbled pantheon-like structure, having no knowledge or memory of their identity or the location they are in (as indicated by dialogue text). The player then takes control of the character and learns that they are in some ruinous maze, and the text will direct the player to try to look for an exit. The player moves cautiously in the environment because their vision is obscured by darkness. They begin with a single torch, which emits a small circle of light around the character, and then learns to avoid monsters, turn on lamps, and figure out how to get around traps. As they progress through the levels, the difficulty will increase. The labyrinth will get larger with more paths that lead to dead ends. The lamps will attract the increasing horde of monsters. The power generator will fail and the character will have to turn it back on. The character will get hungry and need to rest, so the player must search for food and break rooms, or be penalized with a blurry game screen...and so on. While the objective does not change, the player will be met with a curve in gameplay complexity to offer a challenge to their increase in skill and knowledge of the game. To encourage the player to continue playing, there is an element of mystery in the backstory of the game which will be revealed to them as they progress through the levels -- i.e., old diaries will be provided for reading or cutscenes will occur where the character remembers pieces of memory and at the climax, the whole tragic story will be revealed to the player (as well as the character), and after the tension, the character will be released from imprisonment to give the player a sense of freedom from the previous nightmarish confinement.

Figure 1.2 - Concept art for text displays at the beginning of the game, to convey the horror-esque feel and deliver parts of the story, characterization, and instructions.



Controls

The controls are simple: the player controls the main character to move with WASD to run, crouch-walk, duck or jump. There are no other significant controls as the player interacts with objects in-game upon touching their hit field. The setting button is part of the game interface that can be clicked on to bring up options/settings.

Rules

The player's goal is find the exit, in a discreet location that is of significant distance from the player's starting point. The labyrinth is laden with obstacles like monsters and traps which the player must avoid. If the player falls into a death trap, or gets hit by a monster too many times, the character dies and the player must start over. The main 'hard' resource for the player is light begotten by turning on lamps, which may also attract monsters. Minor objectives may also come into play, for example, the player must turn on electric generators somewhere in the labyrinth before they can turn on lamps. After beating all the levels in the game, the player will have victory.

Winning conditions

The only way to win is for the player to beat all levels. There may be optional achievements like the player may be given a score at the end depending on their performance, how much of

the game's optional content like exploration they did, but the scoring is not a condition for victory instead serving as personal milestones for the player.

Game Characters

PC (Player Character)

A female human-like character, beginning the game with no recollection of the past or her surroundings. Through interaction with her world she gradually comes to remember, and her resilience aids her into escaping the horror of the Shadow Maze. The character's movement is fully manually made, i.e. nothing inherited from Unity's customized movements.

Figure 1.3 - Player character concept art derived from the Internet



NPC (Non-player Character)

Monsters: Former citizens of the world reanimated as the undead. These NPCs move randomly, being controlled by AI and tends to be attracted to the nearest light source. If they come in contact with the player, the player will lose life points and this could possibly kill the player (if life points drop to 0).

Figure 1.4 - Some monster concept art (this image is derived from the Evolve Wiki and is to serve as pure inspiration, and will not appear in final product).



Books: Objects that provide some textual explanation for how the world came to be when the player touches them.

Background NPCs: People that are part of the cutscene triggered by the character when she remembers events. They are non-interactable and simply act out small snippets of drama to reveal more of the backstory. May not be implemented if time does not permit.

Story

The world is not as it once was. A terrible Plague of Darkness has descended upon your home planet and smeared out nearly all who live upon it, as well as the Sun. You stand alone to survive in an apocalyptic world, the last of your people, with only a torch and what remains of the lamps, running on the last drops of electricity. You don't remember who you are or how you came to be in this world. As you make your way through the labyrinth, fearful, dreary and hungry, you come to learn more about what your home planet is like before the catastrophe, and the arrival of aliens, which caused an outbreak of war and oppression, before the Plague wiped out nearly all of the population and turned them into the undead. You are a survivor placed within the Shadow Maze where there is a space pod which you can escape from. In the end the character escapes from the Labyrinth and the planet into a brighter sky.

Game World

The fictitious planet named *Lawfella* is the setting of our game. It is a planet similar to Earth except with a more Victorian styled fantasy setting. There are some advanced technology in the form of electric-powered apparatus. For the entirety of the game, the world is in shambles and the player mostly sees the junky, dirty remains of Lawfella. The specific location the player is in is an unnamed maze comprised of ruined buildings and overrun with undead monsters, which actually conceals a space pod the character can escape from.

Media List

Self-made tiles and light graphics made by *Sprite Illuminator*. as well as some images from free-distributed art from *DeviantArt*. Character art from the Web, animations are custom

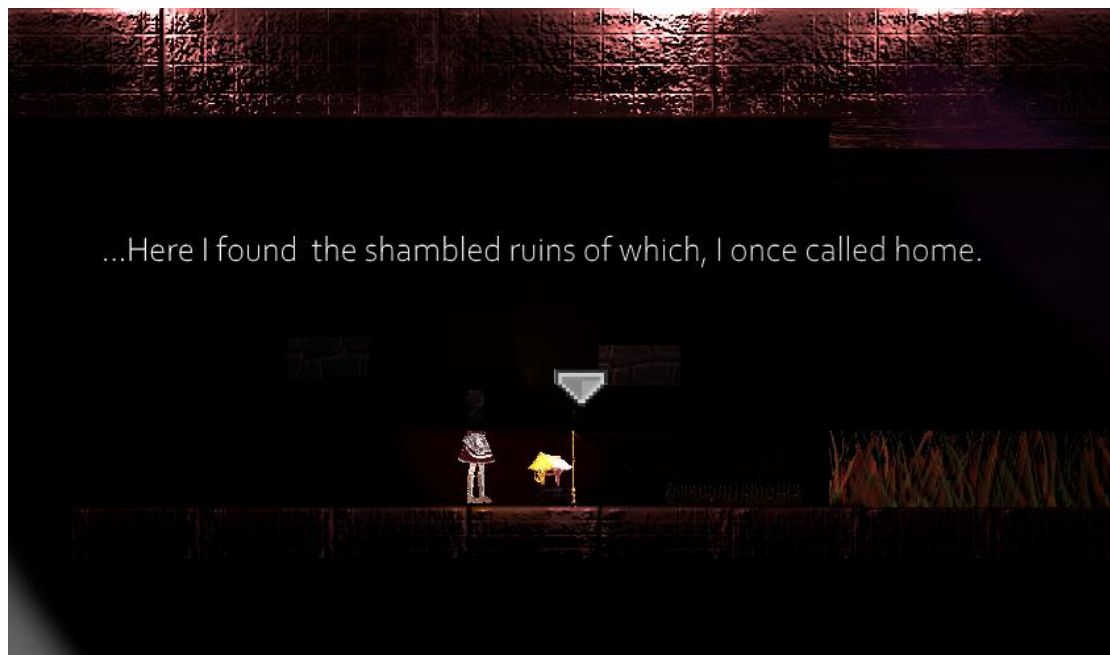
made. Music and sound effects from SoundBible and other Royalty-Free music websites. Includes one background music soundtrack, and sound effects including blowing wind, screaming, and leg breaking so far.

Features Summary

Core Design: Most of our game's core design, including puzzle objects such as light-able lamps, elevators and portals, a moving main character, a basic platform map, are implemented. The ability for the player to select the game difficulty, winning conditions and other systems such as monster AI and life points mechanism will need to be implemented. We will also need to have a basic menu and instructions either in-game or written in a text from the menu so the player understands the basic mechanics at once. Backstory elements and an ending is also needed to make the game actually enticing. We will program readable books, old diaries, some minor cutscenes and an ending -- majority of which is text implementation.

Optional Features: If time permits we will add more complex interactable objects such as electric generators, food, entries to break rooms. A scoring mechanism may also be good to encourage the player to replay the game and explore more of the world. A settings menu that gives the player option to, for example, change the volume may also be implemented.

Figure 2.1 - Concept art for dialogue box appearing with books



Development Status

Features that are completed

Levels [Jan 14th – Jan 20th 2019]:

1. Basic level platform designs have been completed. The aesthetic design is similar to old-school maze games, but it would have 2D side view instead of top down view.
2. Grass and tree graphics are added to the game to give it a more naturalistic look.
3. Broken buildings and carriages are added to the game. The building ruins add to the apocalyptic atmosphere.

Intractable Objects [Jan 21th – Feb 5th 2019]:

4. Transportation platforms are completed. Players would be able to transport from one level/map to the next.
5. Some traps, such as spikes and falling platforms, and their animations have been completed. Players could possibly fall to their death, if they do not pay attention to the surrounding.

Character [Feb 5th – Feb 15th 2019]:

6. Main character sprites are added.
7. Character jump and crouch animations are added.
8. Character basic movement (running) animations are added.

Lighting [Feb 16th – Feb 21th 2019]:

9. Aesthetic lighting is added to some maps.
10. Finished programming light-able lamps, which is a key element of gameplay.

Sound [Feb 21th – Feb 28th 2019]:

11. Background music are added.
12. Key SFX, such as screams, are added.

UI [March 1st – March 5th 2019]

13. Basic player health UI is complete.

Figure 3.1 - Concept art for player's health gauge, which displays their life points.



Figure 3.2 - Concept art for alternatively displaying hearts for player's health.



Features that remain to be completed:

Level

1. More aesthetic decoration for the map design is needed.
2. Trees and grass animations are still under development.

Intractable Objects

3. More traps are needed to add into the game.
4. Chests or quest items are needed to add into the game.

Character

5. Enemy characters are still under development.
6. Enemy AI scripts are under development.
7. Enemy animations are still under development.

Story

8. Need to incorporate more story elements into game. It would be displayed based on a dialogue system.
9. Ending scene is under development.

UI

9. In game menu and inventory system are under development.
10. Game starting menu interface are still under development.

Figure 3.2 - Art asset for the main menu



Any significant barriers to completion and possible fallback positions:

Animation

1. Difficult to find a good animated character sprite. Also difficult to incorporate Unity's animation with character graphic of our choice.

Fallback position:

We decided to make our own animated character which we only take a simple character image from royalty free sites. We create the animations manually using the character skeleton.

2. Some sprite animations would be a great asset, but they require multiple graphic frames which require heavy graphic work. Sadly we do not have an experienced artist in our team who can create sprite animation.

Fallback position:

We decided instead to use Unity's latest technology 2D animation package. It provides us with the necessary features which we could easily manipulate to make decent animation by using Unity alone.

Sound

1. Good sound track is not hard to found, but there are usually multiple soundtracks playing within a game which makes the game more interesting. However, it is difficult to find multiple immersive, atmospheric soundtrack for a horror theme game.

Fallback position:

We decided to add other SFX, such as the character screaming when a character crosses certain points, and background sound effects like wind when the player starts a level.

Lighting

1. Another significant barrier is to create immersive lighting in 2D view. The lightning system is not too aesthetically attractive when compared with a similar 3D game. We also need to create different types of lighting that can be triggered to turn on and off based at certain points.

Fallback position:

We found a useful tool named "Sprite Illuminator" which allows us to create some good looking light/shadow play on different platforms and graphics. The lighting is inspired by a recent game called "Holly Knight".

Any known problems in design revealed by testing with other players:

1. The game is lacking of a backstory which does not give players the proper dramatic

experience or motivation to play to the end.

2. The game lacks moving enemies to pursue the player to add to gaming pressure.

General Feedback

Introduction:

During the play testing sessions, we invited 3 of our friends who are interested in our game. They are test players who are similar to our target users. 1) They all like to play maze and puzzle solving game a lot. 2) Their ages are all between 10 and 30 years old. 3) They all spend around 20 hours gaming in a week.

After testing, my friends have given us feedback in writing. Each of them has also talked about the game orally with us in casual conversation. The following is the text summary and graphic feedbacks.

What we're looking for:

1. How did you like the graphics?
2. Was the music/sound fitting to the atmosphere? Did it help give an immersive experience?
3. Are the controls easy and intuitive to use? Are the physics within bounds?
4. Did you find the gameplay enjoyable? Too easy or too hard? Were the puzzles reasonable?
5. Did the animation flow well? Did it help make the world feel like a living organism?

1.0 Graphics

Our testers like the game's graphics very much.

We received mostly positive responses from our testers. They really like the colors, the lighting, and graphical light/shadow play as the characters moved. The lamps which feature automatic switching on/off functionality got the highest feedback from our participants. Some down sides are that the lighting is a bit too dark to look like it's actually playable. The darkness also makes the map slightly boring after a while if there are no traps. Per their suggestions, we have and will continue to add more background images which make the game environment more versatile and breathing.

After receiving the participants' feedbacks, we have now corrected the mistakes we made in the design. Now, the graphics are not only versatile, but it feels alive.

2.0 Gameplay

Our testers have given us an overall mixed response for our gameplay experience.

They found that the game is a bit too hard without a guide.

The traps set in our game have also been described to be a 'troll' who has killed our participants' character multiple times without due foreshadowing.

The torch is also not very helpful for the players, because the player still cannot see any traps and surrounding enemies with the torch or without it. Based on the suggestions, we add a trap detector function to the torch, but the torch would also expose our players' positions to the enemies.

3.0 Control

Our testers have given an overall acceptable score to our control.

The testers could mostly understand how to use the control intuitively. A trait of our game is

that it does not have many controls, buttons or functions needed to properly play. The player can immediately understand the control mechanisms before entering the game. However, testers did not use the “crouch” command responses (triggered by the S key) efficiently in our game. Testers suggest that we should make an in-game HUD to display the control scheme. We plan to implement an in-game HUD ready for the players in future installations.

4.0 Sound

Our testers have given an overall positive score to our sound design.

The tester said that they could feel some scary moments when they are playing it in certain areas. The overall background music and sound of the wind blowing, when they are passing through the trees and grasses, really gives them an edgy and suspenseful feeling. They also said that the potential enemies and traps combining with the sound are the scariest part of the game. However, one tester suggests us to play some light tone music when they kill an enemy or bypass a trap which could generate a feeling of being rewarded for the gamer’s efforts.

5.0 Animation

Our testers have given us an overall average score to our animation.

The testers said that the overall character animations are fluent, but the walking animation is more like an ‘old lady’ walking style due to that the character looks cramped when she runs. The crouch animation have been pointed out as one of the main issues of the controls as it was slowing the crouch control command. After the issue was found, we have quickly changed the animation to flow more swiftly and smoothly. Also, we found a small bug with the character’s collider box when the character is crouching. We have now completely fixed the problem of our animation.

Milestones

Week of March 2-8: Implement life points system with a life points gauge displaying.

Character should die upon either falling into a death trap or if life points reach 0. 2 maps should be complete at that point, and reaching the exit on map 1 should transport player to map 2. Test if life point system/transportation works smoothly.

Week of March 9-15: Add in text instructions/some monologue on map 1 to set up the premise/mechanisms of the game. Add in moving monsters on map 2. Make sure monsters move toward light source. Refine character animation if time permits. Test level design with three players, make sure the premise is understandable, quick to grasp, and fun to play.

Week of March 16-22: Add in more map designs with monsters, potentially 2-3. Attempt to add in mechanisms like lamps dying out quickly and character needs to switch on power generator. If time permit, add in 1-2 hidden rooms character can rest in, with food, and also with readable objects like old diaries to give textual hints to the story. Begin working on ending cutscene. Test with users to ensure gameplay is smooth and difficulty spike is reasonable. Begin a rough sketch of the game’s promotional poster.

Week of March 23-30: Finish drawing the game’s poster. Add in main menu interface and selection of game difficulty. Finish ending cutscene. Final peer testing with three users to see if menu/additional interface is intuitive, ensure difficulty is reasonable, tweak any bugs, or

remove any unnecessary content/features. If time permits, add in an in-game cutscene for the character's flashback.

Week of April 1-5: Final testing to ensure there are no breaking bugs, game functions smoothly, and all content is in place. Make last minute adjustments to graphics if necessary, but new content should not be added unless integral to functioning of game. Prepare for game demo presentation and hand in the final product.