



FALLING MEMORIES

Game Design Document

Table of contents

1	Game Overview.....	3
1.1	What is Falling Memories?.....	3
1.2	Setting.....	3
1.3	Mood.....	3
1.4	High Concept.....	3
1.5	Design Pillars.....	3
1.6	Unique Selling Points.....	4
2	Platform minimum requirements.....	4
3	Synopsis.....	4
3.1	Game objectives.....	4
3.2	Game rules.....	4
3.3	Game structure.....	5
4	Game controls.....	5
4.1	Controller rumble.....	5
5	Functional UI design.....	6
5.1	HUD.....	6
5.2	Menu structure.....	6
5.3	Start menu.....	6
5.4	Highscores sub-menu.....	7
5.5	Result screen.....	7
6	Camera.....	8
6.1	Standard camera view.....	8
6.2	Player diving camera.....	8
6.3	Camera shake.....	9
7	Player (character).....	9
7.1	Player metrics.....	9
7.2	Player states.....	10
7.3	Player movement.....	10
7.4	Player abilities.....	10
8	Level.....	11
8.1	Level pickups.....	11
8.2	Level elements.....	11
9	Scoring.....	13
10	Audio.....	14

10.1	BGM	14
10.2	Menu Navigation.....	14
10.3	Character.....	14
10.4	Pickups	14
10.5	Level	14
11	Minimum Viable Product (MVP) & Stretch goals.....	15
11.1	MVP.....	15
11.2	Stretch goals:	15
12	Extra comment.....	15

1 Game Overview

Title: Falling Memories

Platform: PC (Windows)

Genre: Arcade

Target Audience: All ages, challenge seekers.

1.1 What is Falling Memories?

Falling memories is a third person arcade game in which the player is endlessly falling down a tunnel of neurons and memories. The player has to avoid the faster falling “memory” objects, evade the tunnel’s static neurons and dangers, and try to score as high as possible by making use of special scoring opportunities and diving to fall faster while increasing the score multiplier.

While the player is avoiding the obstacles, their character will lose its morale at a steady pace. In order to survive they need make use of the escape portals to boost the character’s morale. The player will have a set of consumable-using skills to use to help them survive, but they must use them diligently, as pickups to restore these consumables are not common.

1.2 Setting

Falling memories situates itself in the mind (brain) of a dying person. As death approaches, it is said we make a last trip through memory lane, experiencing the many events in our life once more.

The game transports you right into the journey of “falling” through those memories, in which the longer the player survives, the more memories they can relive once more.

The journey is represented by an endless tunnel, with the obstacles and objects being representative visuals of life memories and harmful brain neurons.

The complete setting should give the player the feeling of falling endlessly inside a semi-psychedelic “dream”.

1.3 Mood

A semi-psychedelic, spiritual mood, combined with some arcade-retro colours.

Due to the challenging nature of the game, the player should experience a constant pressure of danger at long survival times.

1.4 High Concept

End of life, Death. Falling through life’s memories. Control your fall, evade the obstacles, charge up with will bursts and keep your morale high. Survive to relive as many memories as possible, and get the highest score!

1.5 Design Pillars

Arcade, Challenging

1.6 Unique Selling Points

- ✓ Fast paced, challenging gameplay requiring full focus to achieve the highest scores.
- ✓ Playable in short periods, ideal for players craving a challenge, but don't have the time to invest hours.
- ✓ Unique philosophical narrative implemented in a lightweight-backstory form.

2 Platform minimum requirements

OS: Windows 10 64-bit

System RAM: 16GB DDR3

CPU: 3.3Ghz 4-core processor

GPU: NVIDIA GeForce GTX 1060 3Gb

Free Disk space: 2GB

3 Synopsis

3.1 Game objectives

The main objective of the game is to survive as long as possible while scoring the most points.

To achieve this objective, players must evade obstacles, avoid falling objects, collect pickups and replenish their morale whilst capturing opportunities to earn extra score.

3.2 Game rules

The game level is a closed environment inside a never ending tunnel. The Player is continuously falling through the tunnel.

During the fall, the player can freely move forward, backward, left and right, can choose to fall faster by diving, and has an evade skill which lets the player dodge left/right based on a button press. The player also has a boost ability that allows the player to speed up movement, in trade for not being able to dive or evade.

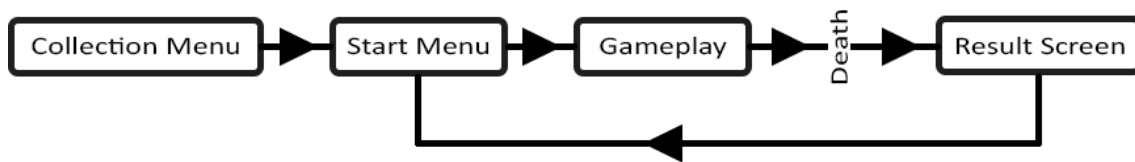
The player has a morale stat that is being reduced at a constant pace. The player also has a life stat, and "will burst" consumables that are used when the player uses an ability.

In the tunnel, the player will have to avoid obstacles that are static or move dynamically inside the tunnel, evade objects that are falling faster than the player and reach escape portals to replenish the player's morale. If the player hits a tunnel obstacle, the player dies. If the player is hit by a falling object, the player loses health based on the object's size.

The escape portals appear when the player's morale reaches a certain level. Successfully hitting the portal will reward the player with a "phased dive", making the player dive at fast speed, while being invulnerable.

Scoring opportunities are based on survival time, hitting certain bonus score spots and diving to get a score multiplier.

3.3 Game structure



4 Game controls



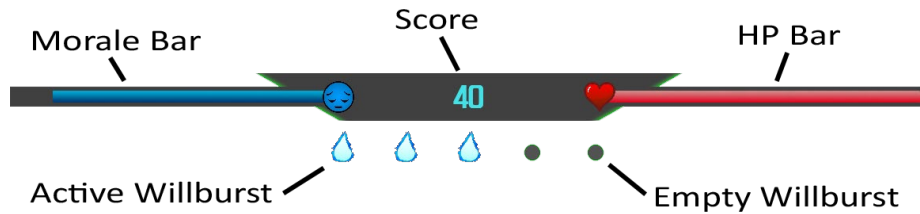
4.1 Controller rumble

- Rumble on these game events:
 - **Player dive:** Soft continuous rumble for the duration of the dive, smooths in and out.
 - **Player Phase Dive:** String continuous rumble for the duration of the phase dive, smooths in and out.
 - **Player evade:** Very short, hard, low frequency rumble.
 - **On player hit:**
 - **Large objects:** Max frequency rumble for a very short duration.
 - **Medium objects:** Slightly below max frequency rumble for a very short duration.
 - **Small objects:** Slightly below the medium object hit frequency rumble for a very short duration.
 - **On player triggers stun could:** Continuous medium, low frequency rumble for the duration of the stun.
 - **On player triggers score ring:** Very short, max high frequency rumble.
 - **On player trigger escape portal:** Same frequency and duration as the evade rumble.

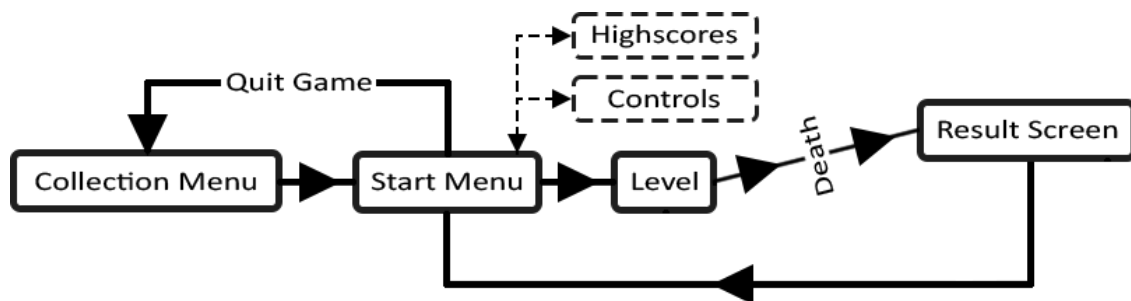
5 Functional UI design

5.1 HUD

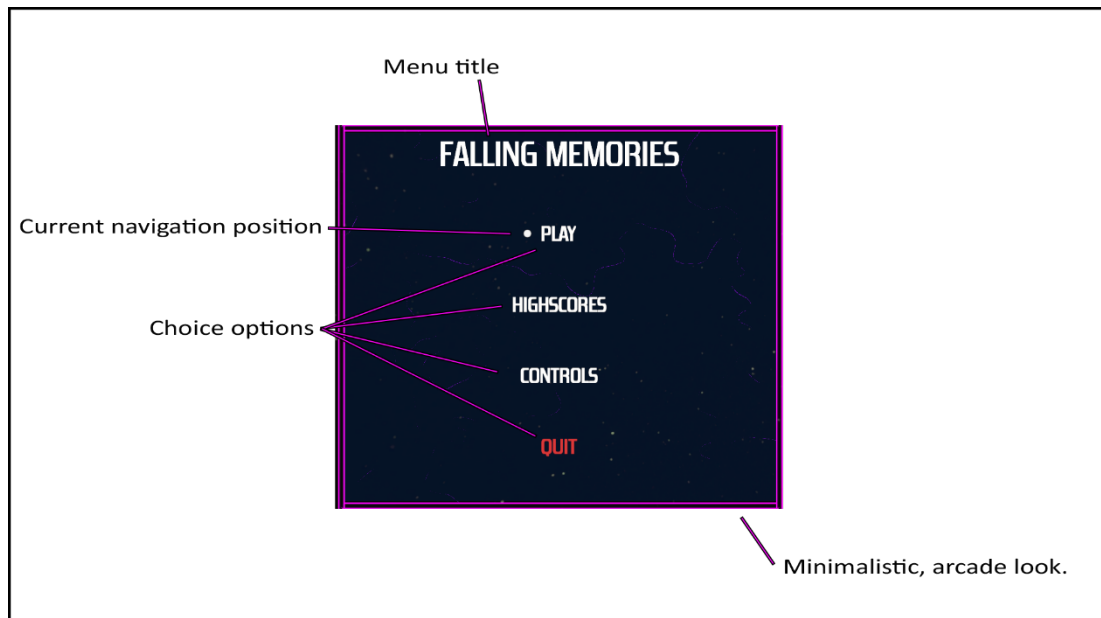
- A single, compact visual information structure placed bordering the top-mid edge of the screen:



5.2 Menu structure

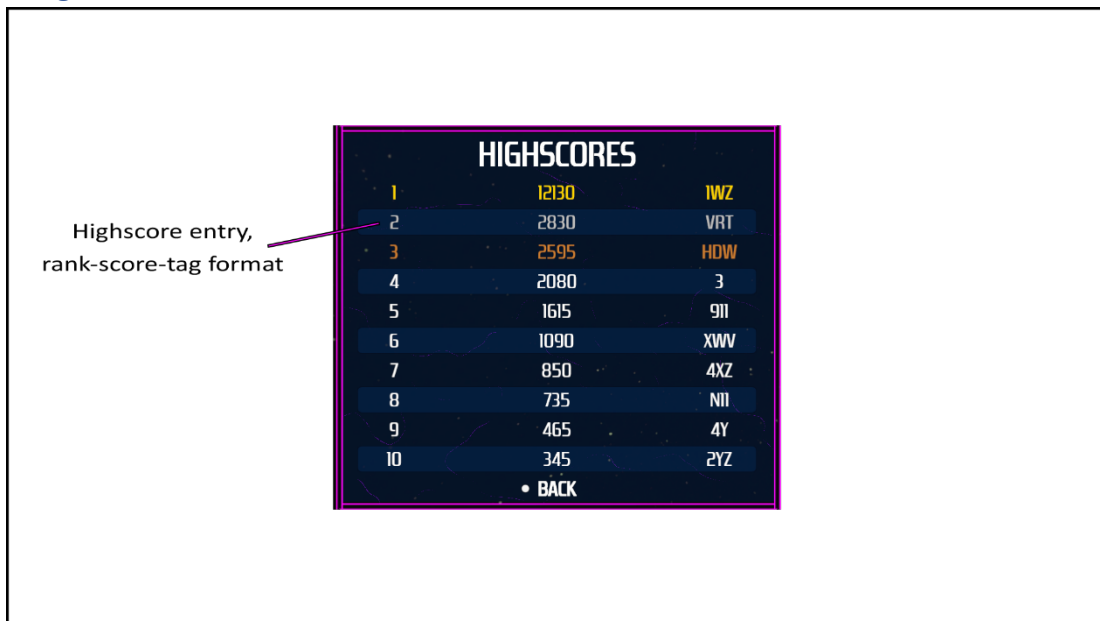


5.3 Start menu



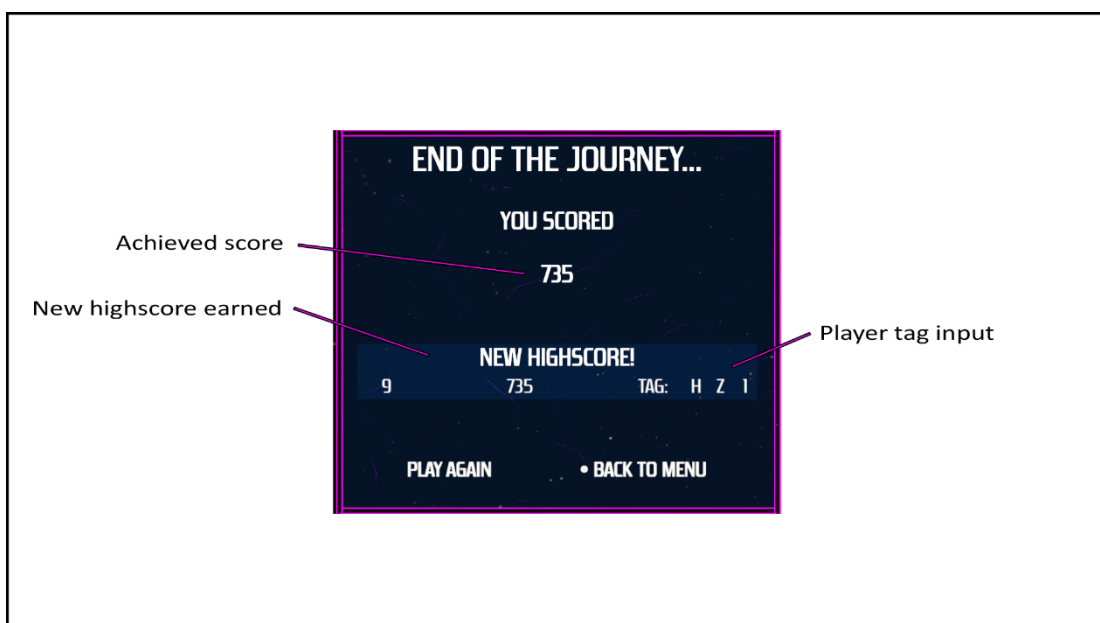
- Play starts the game, Quit returns to the collection bundle menu. Highscores & Controls open their respective menus.
- Controls menu is a simple controls diagram image, a title "Controls" and a back button. This sub-menu makes use of the same style.

5.4 Highscores sub-menu



- Features the top 10 highest scores achieved (*currently read from a local file*).
- Colours the top 3 in respective gold, silver and bronze.

5.5 Result screen

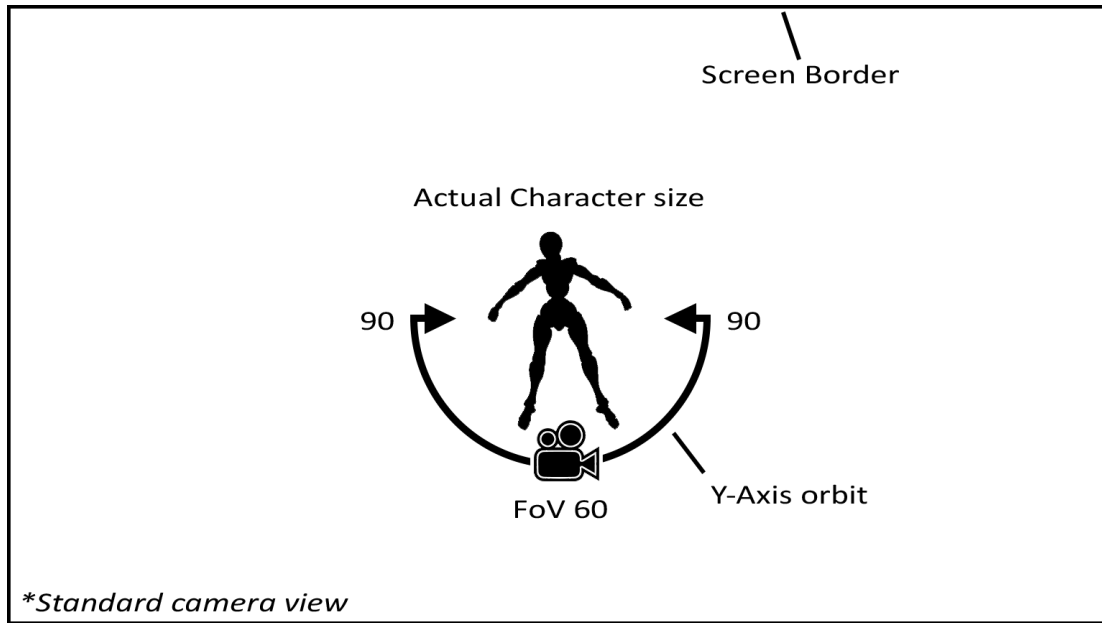


- The new highscore only appears if the player achieved a top 10 highscore, it will colour itself respectively with gold, silver or bronze if place 1, 2 or 3 is achieved.
- Player tag input allows the player to input a three "0-Z" characters tag, this is done by cycling through the available characters with up/down navigation, and moving character slots with left/right navigation. The first character slot is automatically selected if the new highscore is activated. Pressing submit places the navigation pointer on "back to menu".

6 Camera

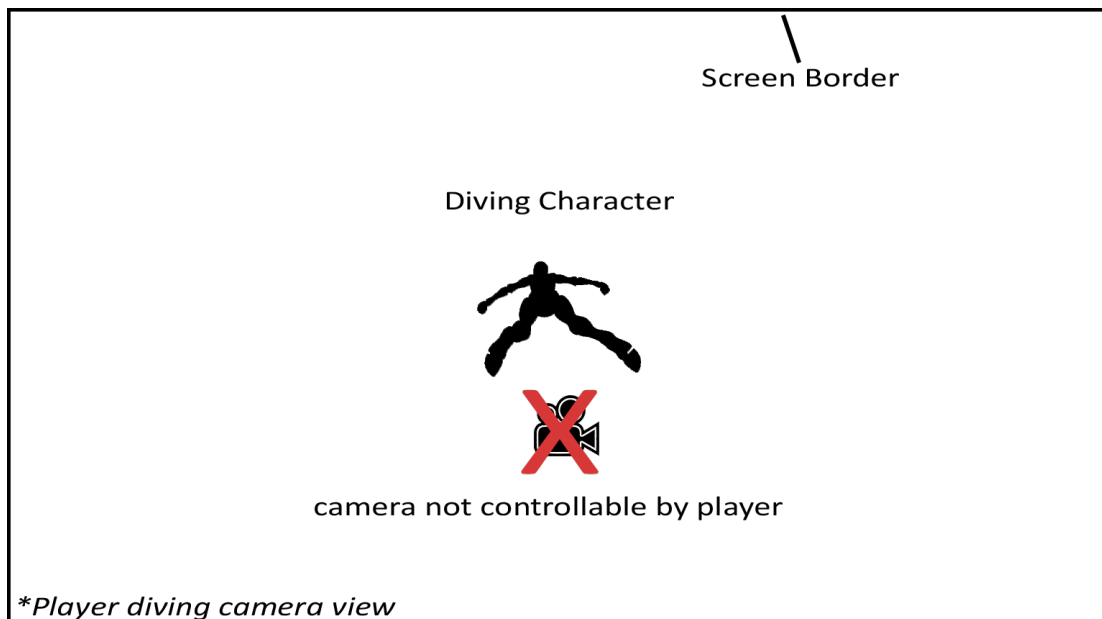
6.1 Standard camera view

- Third-person orbiting camera.
- Player camera controls:
 - Rotate around the world-up axis with limits, see visualisation below.
 - No rotation on the other axis. No camera zoom.



6.2 Player diving camera

- Player dive view:



- Camera blend:
 - **Player enters dive:** Camera gets pulled closer to hover slightly above the player's back right behind its feet, looking 90° down. This happens in a smooth lerp, coherently with the character's models forward tilt lerp. FoV is lerped to a value of 80 (Phase dive lerps the FoV value to 120).
 - **Player exits dive:** Reverse blend of going into dive. FoV is lerped back to the original value.

6.3 Camera shake

- All shake uses a 6D randomized graph.
- Camera Shake on certain game events:
 - **Player dives:** Light continuous camera shake(lerps in-out at start & end).
 - **Player Phase dives:** Noticeable, medium continuous camera shake(lerps in-out at start & end).
 - **Player evades:** Very short, noticeable burst of camera shake, imitating the camera being "pushed" once by a force.
 - **Player hit by falling object:**
 - **Large object:** Large short burst of camera shake.
 - **Medium object:** Medium short burst of camera shake.
 - **Small object:** Light, but noticeable short burst of camera shake.
 - **Player stunned:** Medium, noticeable camera shake for the duration of the stun.

7 Player (character)

A human character at death's doorstep falling through their memories of life.

Represented visually by a grey-long haired older character wearing a hospital's medical patient gown.

***Note:** In this build, the character is a placeholder and does not preview how the character's graphics will look.*

7.1 Player metrics

- **Health:** 100 starting value, decreased when the character is hit by falling objects, can't be replenished.
- **Morale:** 1000 starting value, decreased by 2 per second during the whole gameplay session, replenished by activating escape portals.
- **Will Burst:** 2 starting value, consumed by ability use, replenished by collecting "willbursts".

7.2 Player states

- **Falling:** The neutral player state. Player has control over movement, all can use all abilities and can be health damaged.
- **Diving:** The player's accelerated fall state. Player accelerates the tunnel twice as fast, has his movement speed reduced by half, and cannot use abilities. This state adds a scoring multiplier, and is performed by button hold. The player can be health damaged.
- **Evading:** The player's evade state. The player rolls to either left or right, and accelerates its sideways movement. The player cannot use abilities during. The evade is toggled by button press, and has a pre-set duration the player can't interrupt. The player can be health damaged.
- **Boosting:** The player boost state. Boosts the player's movement speed but doesn't accelerate the fall. The player cannot use abilities during boost. Boost has a pre-set duration the player can't cancel, and is toggled by button press. The player can be health damaged.
- **Phase diving:** The player's phase dive state. Toggled when successfully reached an escape portal. Tunnel acceleration and player control remains the same as the diving state. Player can't be health damaged during this state. The state has a pre-set duration, and can't be interrupted by the player. **Note:** *The player should be given a moment of recovery after.*

7.3 Player movement

The player appears to be moving vertically, but it's actually the tunnel that moves vertically. The player does move freely forward backward, left and right inside the tunnel.

The player directly controls the tunnel's vertical speed by diving or exiting dive.

Only basic XZ-axis movement, Y-axis movement is disabled on the player character.

7.4 Player abilities

- **Dive:** The player character tilts forward as if it were diving (90 degree angle), the camera changes position and has camera shake, the controller rumbles. (explained in camera & controls section).
 - Accelerates the tunnel.
 - Reduces the XZ-axis movement speed of the character.
 - Adds a score multiplier that remains until the dive has been cancelled.
 - Blocks the use of other abilities during.
 - Activated/deactivated at will during neutral "falling" state.
- **Evade:** The player character rolls left or right based on what button was pressed.
 - Moves the player left or right at an increased speed.
 - Activated during neutral state at will, deactivates itself after a duration.
 - Blocks the use of other abilities during.
- **Boost:** The player Activates a glow around themselves (*Note: in the current build, this is represented poorly by a quick-made material, this is not a reference to the end vision*).
 - Boosts the player movement speed.
 - Doesn't affect the tunnel speed.
 - Activated during neutral state at will, deactivates itself after a duration.
 - Blocks the use of other abilities during.

8 Level

The level is an endless tunnel with procedurally generated tunnel sections that can include different obstacles or score points.

The tunnel cannot be exited from the side, the player dies upon hitting the sides.

During the game, the tunnel will spawn objects that fall along with the player at faster speed.

Pickups and escape portals appear at the vertical level the player is at.

8.1 Level pickups

Will whisp:

Common spawn at random. Pickup that is collected by colliding with it. Replenishes 1 player Will Burst consumable and doesn't move once spawned. Activates a colour-matching particle system on collection.

Dual will whisp:

Rare spawn at random. Pickup that is collected by colliding with it. Replenishes 2 player Will Burst consumables. Doesn't move once spawned. Activates a colour-matching particle system on collection.

Spirit wine:

Super rare spawn at random. Pickup that is collected by colliding with it. Replenishes all player's will burst consumables and adds an extra will burst slot(filled). Remains static after spawn. This consumable blocks skill use & slows down the player for a small duration of "consuming it". It's appearance is a red Chinese rice wine bottle.



Note: There is a chance on long stretches of pickup-drought in the current build, this will be solved with a forgiveness mechanic that spawns a whisp close to the player after a certain amount of time expires without any pickup entering the camera frustum.

8.2 Level elements

- **Tunnel section:** Sections of the tunnel that are used to continuously generate the endless tunnel.
Tunnel sections are spawned in with a set number of empty sections in between, this number of empty sections decreases the longer the player survives until the linear endpoint is reached. The tunnel then switches into random spawn mode.
 - Sections are cylindrical in shape with an open top & bottom, contain a "ring" and a transparent (Electrical force-shield transparent shader) body.
 - Sections can have random rotation between limit values.
 - Hitting the ring of a section will instant-kill the player.
 - The player instantly dies if breaching the tunnel wall.

- **Section variations:**

E-section: Empty tunnel section. Used to bridge empty space between other variations. These create “rest” moments for the player.

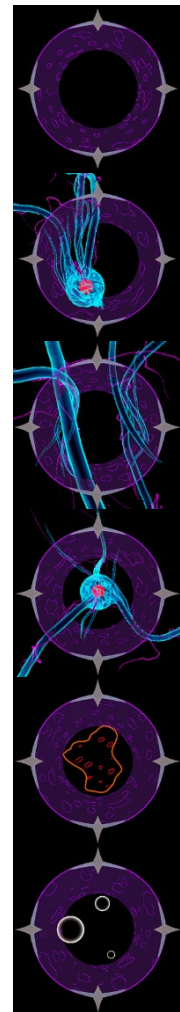
C-section: Tunnel section with 40% filled with a static obstacle that remains static to the section body and ring.

H-section: Same as the C-model but with 2 smaller static obstacles on the opposing sides of the tunnel.

X-section: Same as C-model but with 1 static obstacle with many extrusions that reach to the tunnel wall. This creates smaller spaces the player must fly through.

Stun-section: An empty model with a “stun cloud” that the player must avoid. Flying through this cloud will cause the player to have their movement speed halved, and be unable to use skills. This cloud moves freely at random within the tunnel section.

Score-section: An empty model with different sized “score rings” the player can fly through to earn bonus score based on the ring size. These rings remain static to the section body and ring.



- **Falling object:** Objects that are spawned above the player and fall down with a speed faster than the player, the objects are physics enabled, and can change course of flight when colliding. They collide with the player, tunnel obstacles and other falling objects and tunnel rings.

These objects are spawned at a set time interval, this interval consistently shrinks the longer the player survives.

The objects represent key items in a person’s life that can hold meaning of great accomplishments, emotional attachment, or items that pronounce anxiety.

- **Falling object tiers:**

Small object:

High speed, small size, low health damage on player hit. Represents emotional attachment key-items.



Medium object:

Medium speed, medium size, medium health damage on player hit. Represents greater achievements key-items.

Large object:

Slow speed, large size, heavy health damage on player hit. Represents unique milestones in life as key-items.

Impact visual:

The visualisation where the item will pass. This alerts the player to move away or avoid a certain area. The visual has a constant rotation on the world-up axis and its red danger markers blink on and off.



Note: The current build only has 1 model for each tier, this should increase to 3 of each minimum in the final build. The impact visual's shader is a step in the direction how it should look, but will be further enhanced in a future build.

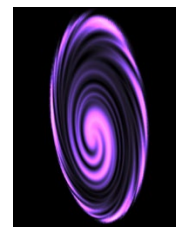
- **Launched object:** Objects spawned & shot into the tunnel from the sides.
 - Objects behave equal to the falling objects.
 - Exception: 0 gravity & have horizontal movement instead of vertical.
 - **Note:** This is not implemented in the current build.
- **Escape portal:** Object spawned when player morale is at a certain point.

Escape portals are a must-reach for the player, failure to reach in time will lead to the character death.

These portals remain at the vertical level the player is at.

Escape portals don't collide with obstacles or objects, only with the player character.

On successful trigger with the player character, this portal activates the player's phased dive state, and replenishes the player's morale.



Note: In future builds, the player should have a directional pointer to find the portal easier.

9 Scoring

Scoring is based on the time survived by the player with a few exceptions:

- When the player is diving or phase diving, the score is multiplied by a set multiplier.
- When the player hits bonus score rings, the score is increased by a set amount (not influenced by multipliers).

10 Audio

Note: Audio is not implemented due to time constraints. As audio is relatively unrelated to any type of player feedback, this was left out in favour of the visual aspect and a highscore system.

10.1 BGM

- **Menu music** (Not used in game/result screen): A psychedelic-type, ambient music.
Example for reference(not the actual menu BGM choice): [YouTube: Trippy Tribal BGM](#)
- **Game music:** A psytrance upbeat type music, this to raise up a little more adrenaline and make the game feel faster.
Example for reference(not the actual menu BGM choice): [YouTube: Parasect - Electrofun](#)
This example is great due to the added anomalies in the track, could have the possibilities of pulling the player out of concentration, adding a small layer of extra difficulty.
- **Result screen:** A single loop of an SFX that relates to a soul passing(death). Sound is started at awake of the result screen.
Example very close as intended: [POND5 – Soul In Torment 03](#)

10.2 Menu Navigation

- Minimal UI SFX that are played on a menu navigation event: OnMove, OnSubmit, OnValueChanged(only for the player tag input on the result screen).

10.3 Character

- Audio on ability use:
 - **Evade:** Short SFX of a human making an “effort grunt”(Close to the sound a person would make when jumping).
 - **Boost:** SFX of a human screaming “whew” enthusiastically.
- Audio on being hit:
 - Very short bone-breaking sound immediately followed up by a painful grunt(scream).

10.4 Pickups

- On single whisp collect: A Single “swish” sound. [Example](#)
- On Dual whisp collect: A single swish sound, rapidly followed up by a second swish sound while the first is still playing.
- On Spirt wine collect: Human drinking sound, swish sound when the consummation time end.

10.5 Level

- On stun cloud hit: Continuous electricity SFX for the duration of the stun.
- On score ring hit: Short, enthusiastic human “Yeah!” shout.

11 Minimum Viable Product (MVP) & Stretch goals

11.1 MVP

The minimum viable product needs to be a polished game including:

- A fully functional player character.
 - Including the Dive, boost and evade abilities.
- A procedurally generated endless tunnel.
 - Including 6 different functional section models.
- An object spawn system for both the falling objects and the side shot objects.
 - Fully functional.
- Fully functional player metrics.
 - Including the health system, morale system and will burst system.
- A player HUD with the needed player metric and score visualisation.
- A functional scoring system.
- Fully functional escape portal system, with the respective player phase dive state.
- Start menu and result screen.
- Fully functional Camera system.
- Fully functional controller system.
- Audio and sounds functional.

11.2 Stretch goals:

The stretch goals are:

- Multiplayer.
- More tunnel section variations.
- Extra levels to choose from, featuring different challenge modes.
- Extra player abilities to unlock.
- Some extra unique pickups.

12 Extra comment

- The art assets in this vertical slice are meant to illustrate the direction of the end look. As time was too limited, proper art assets were not possible to obtain. Some of the art assets are pure placeholders, these have been noted in their respected section in this GDD.