



## Game Design Document

FIREBALL STUDIOS





## Version History & Change Log

Version	Date	Name	Notes
V0.1	11/09/23	Zachery Dyer	Initialise document, outlining headings and format
V0.2	14/09/23	Deaken Perera	Created team logo
V0.3	20/09/23	Brodie Frazier Zachery Dyer	Game overview, gameplay, look & feel, documentation overview. Format polish.
V0.4	22/09/23	Brodie Frazier  Aaron Sciretta	Added art influences and UI mockups.  Added details to the level design, and prototype method. Added Xbox controller diagram, updated camera shot and POV.
V0.5	27/09/23	Aaron Sciretta  Zachery Dyer  Brodie Frazier	Researched four competitors of our game, defined the game's Target Audience and added a few words to the USP.  Started scope overview, working on Alpha scope, and outline of tasks, formatting the scope overview document in Google Sheets.  Core mechanics & mechanics polished. Added tension system as well as concepts of characters losing limbs. Keyboard controls & links. Sound planning. The prototyping method was updated. Game loops & diagrams created
V1.0	28/07/23	Brodie Frazier  Aaron Sciretta	Prototyping updates, influence updates, art style and mood updates. Title / Logo creation Dynamics added. Touch up on formatting. First "completed" pass of doc.  Expanded settings overview, spelling and grammar check
V1.0.1	29/07/23	Zachery Dyer	started outlining the expectations in the milestones, and what is expected by the end of each milestone.
V1.1	9/10/23	Brodie Frazier	Updated overview, removed keyboard support.
V1.2	11/10/23	Aaron Sciretta	Spelling and Grammar across the whole document. Changed game listing price.



<b>V2.0</b>	13/10/23	Brodie Frazier	<b><u>Complete rewrite and refinement of the entire doc</u></b> All mechanics are refined and restated clearly. The pelvis string was removed as well as the finishing system. UI updated to both diegetic and non-diegetic, updating examples Player count temp changed to 2. Art style updated with new concepts and art. Lighting stated Overview refined. Win condition clearly stated. Removed old UI and some influences. Character customisation was introduced. Tutorial added and explained. Dualsense controls added.
<b>V3.0 (Alpha)</b>	20/10/23	Brodie Frazier, Aaron Sciretta, Zachery Dyer	Mechanics once again completely reworked.
<b>V3.1</b>	25/10/23	Brodie Frazier	UI updated and new concepts added, player character customisation updated, level design updated. Loops updated
<b>V3.3</b>	9/11/23	Zachery Dyer	Update to tech limitations. Update to milestone, outlining what is expected during alpha and beta.
<b>V3.4</b>	10/11/23	Lochlan McDonald	Fixed spelling, grammar and incorrect wording throughout the whole of the document.
<b>V4.0 (Beta)</b>	15/11/23	Brodie Frazier	Doc <u>re-wrote</u> again to match the alpha build. Mechanics refined, the User interface, character section, and level design completely rewritten and all images updated to match the most recent build. LDD cut as it was unnecessary. Technical limitations and scope updated. Sound planning expanded and linked example sounds from the drive
		Elijah Salvana	Look and feel updated to match the current art bible.
<b>V5.0 (Gold)</b>	7/12/23	Brodie Frazier	Rewrote and updated overview, mechanics, UI and added keyboard support.
		Zachery Dyer	Updated game loops & Technical limitations







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## Overview

<b>Genre</b>	Party / Couch game, Fighting
<b>Platform</b>	Console, Xbox & PlayStation
<b>Point of View</b>	Third-person, Long/Wide shot with a mid angle $\frac{3}{4}$ view
<b>Theme &amp; Mood</b>	Fun, Fast, Dark, Theatrical violence

## Game Design Pillars

- Couch play
- Silly
- String puppets

## Elevator pitch

Imagine sitting down for a puppet show, but they all start brutally fighting and pulling each other apart. Strings and limbs will go flying everywhere, may the last strings standing be declared the master of puppets!

## Gameplay (Player Goals)

- Destroy the enemy player's puppet
- Manage health (string tension)
- Win a rose for each round you win, the first to get 3 roses wins



## Premise (Player Experience)

- Players control puppets, mimicking pulling strings on a crossbar.
- The player controller will allow for individual movement over each arm, allowing for different uses of mechanics in unison. (one arm blocking one punching)
- Two-player brawler-like.
- Resource control over health, reflected in string tension & limb management
- 3-life system (one life per arm and one for head), however losing head will kill the player instantly.
- Each round will be quick, fast-paced gameplay 1-2 mins max.

## Unique Selling Points

- String puppet physics-based combat.
- Short quick gameplay sessions.
- A small learning curve, great for casual players.

## Setting Overview

- The game takes place in a world where puppets are no longer used just for show, they take part in combat and dominate the arena, people watch as master puppeteers use their skills to satisfy and make the crowd roar.
- Play to be the best puppet fighter, taking place on a stage in front of a live crowd!



## Target Market Analysis

**Age Group** - The age group for this game ranges from young teens to mid-adults.

**Genders** - This game is suitable for all genders as it is very gender-neutral in design with the puppets and areas having no specific gender conformity.

**Socioeconomics** - This game is for low to middle-class incomes, parents who want to purchase a game for their kids or those who want a party game without spending much money. This game would be played when having friends or family over and is more suitable for those living with someone they can play the game with. Expected price estimate ~\$25

**Platforms** - This game will be released on Xbox, free with the Xbox GamePass subscription. Will also be available on PC due to game pass regulations.

**Player Profile** - People that would play this game have traits like

- Enjoy casual party games
- Enjoy casual fighting games
- Like the marionette aesthetic
- Have friends they want to play new games with
- Enjoy playing games with friends

## Competitors

### Gang Beasts \$30

Gang Beasts was released on Xbox on 29/8/2014 for \$30 made by BoneLoaf and Coatsink it was also released on the PS4 on 12/12/2017, Steam on 13/12/2017 and Nintendo Switch on 12/10/2021.

Gang Beasts is a 3D Action casual party game where up to 4 players local and 8 players online fight to knock each other off the map or into traps to defeat them, the last one standing wins. Gang Beasts made \$60.8M over 6 years with 4.6M units sold.

### Dragon Ball Xenoverse 2 \$70

Dragon Ball Xenoverse 2 was released on 25/10/2016 for the PlayStation 4 and on 28/10/2016 for Steam.

Dragon Ball Xenoverse 2 is a 3D Action Fighting game with a large competitive and casual player base where the game's goal is to defeat your opponent using basic and advanced attacks.

The game received continuous DLC content which averages around \$12 for individual packs up until 11/05/2023 and sold over 10M total copies from 2016 to 2023



### **Party Animals \$30**

Party Animals was released on 20/09/2023 for Xbox and PC, it is a 3D casual action fighting game where up to 2 - 4 players are on a map with items spawning in are used to attack other players.

Each map has a unique way of defeating opponents and is not always active, the maps also have a situation where it will spawn an unavoidable hazard and the player that survives is crowned the winner of that round, the first to 3 rounds won will win the game.

The game has mostly positive reviews on Steam with some negative talk relating to the Microtransactions in the game. Due to how new the game is at the time of writing this (29/09/2023), not much information is available on how much money it has made or how many copies have sold.

### **Rubber Bandits \$15**

Rubber Bandits was released on 28/05/2021 for Xbox, PC, PlayStation and Nintendo Switch, it is a 3D action party game played with 4 players with 8 different game modes with different objectives and items constantly spawning with different effects, A player wins when getting 21 points, players earn points at the end of each round based on your position, players also vote what game mode they want to play each round.

Rubber Bandits has sold 133K units on Steam alone.

### **Inspirations from competitors**

- Spawnable objects that players can inspired by Rubber Bandits and Party Animals
- Do not have microtransactions for a premium plan inspired by Party Animals
- A floppy physics-based movement inspired by Gang Beasts and Party Animals
- Camera Angle from Party Animals and Gang Beasts



# Gameplay

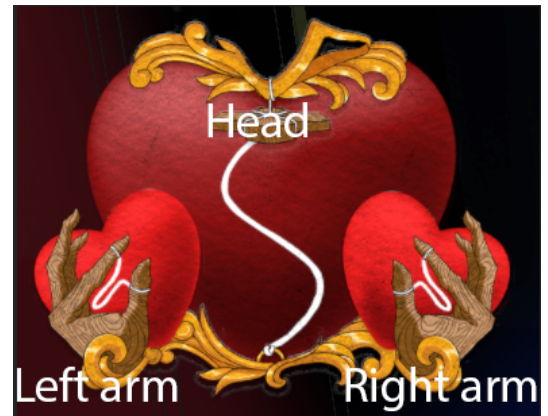
## Core Mechanics

### Health (tension)

The string visually represents a health bar for each of the three strings, the head and both arms. When an attack is connected with the player, their health will lower according to the damage of the landed attack (flail, punch, headbutt).

Each limb has its own separate health value. If the health drops to zero, the associated string will snap. There will be no way to regenerate health.

The health system will be called “Tension” in the game, with the strings getting tighter in the UI to reflect the health of the string dropping.



### Losing Strings

The player has 3 strings attached to them, one on the head and one on each arm. If the head string is broken, the player will be instantly killed.

Once a player's arm string has broken, the attached arm will become limp, becoming completely physics-based and driven only by character movement.



### Punching

Single punch attack, available only while the string is still attached. Each arm has its own punch. Only one punch can be done at a time. When landed on the opposing player, it will damage and knock them back. Will hit the head or shoulders, depending on the other player's movement.

### Parrying

Players can quickly raise their arm(s) individually or together. This will block any damage directed at the player. Both arms can be raised at once, if both arms are raised, the damage will be shared equally between both. If a parry is landed against an attack, the opposing player will be stunned and greatly knocked back.



## Other mechanics

**Headbutt** - The player can use the headbutt attack once a string is lost. The attack will do a higher amount of damage compared to the punch and flail damage. This attack will be a last resort, turning the player into a glass cannon.

**Flail attack** - Once a string has been snapped, the arm becomes limp and its movement is completely physics-based, becoming a ragdoll based on the player's movement. If the velocity of the arm is fast enough, it will deal damage to the opposing player on contact.

**Character movement** - The character movement created by the player moving forward in what direction the player is facing. The player can look 360 degrees around them, locked on the X-axis.

**Limbs falling off** - If a limb has no attached string, when hit it will have a 14% chance it will be broken upon hit, sent flying off of the puppet's body.

**Dying** - Once the health of the head string falls to 0 all strings are snapped. This is the loss condition. The other player is then given a rose from the crowd.

### Damage and Health values

Head string health = 225

Arm string health = 175 (per arm)

Punch - 20 damage

Flail - 10 damage

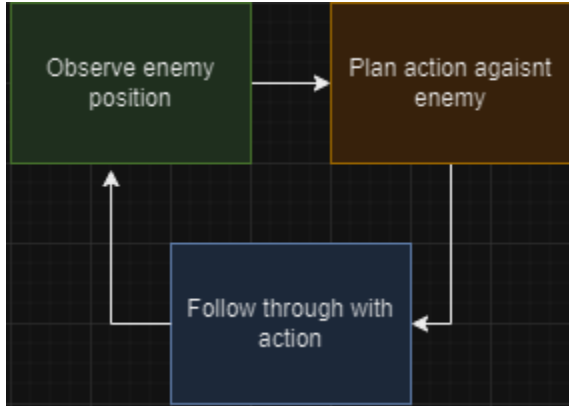
Headbutt - 35 damage



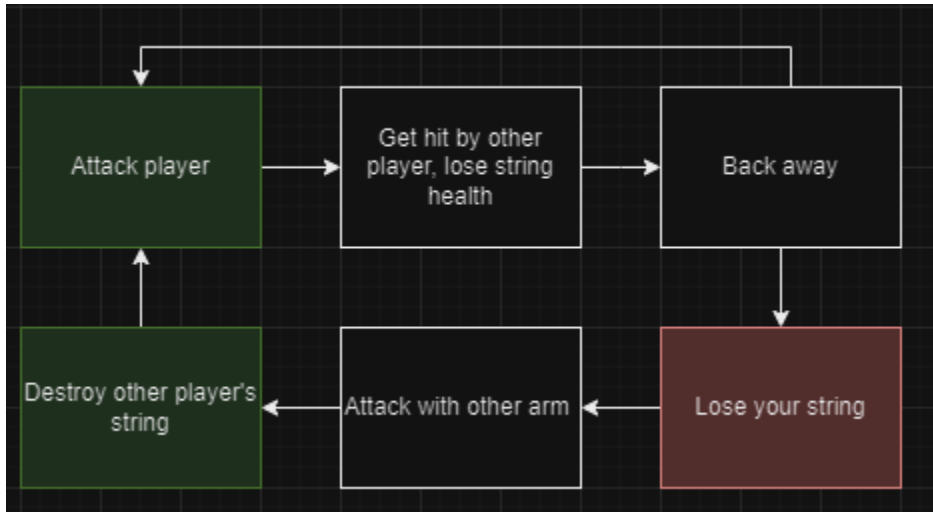


# Game Loops

## Core loop

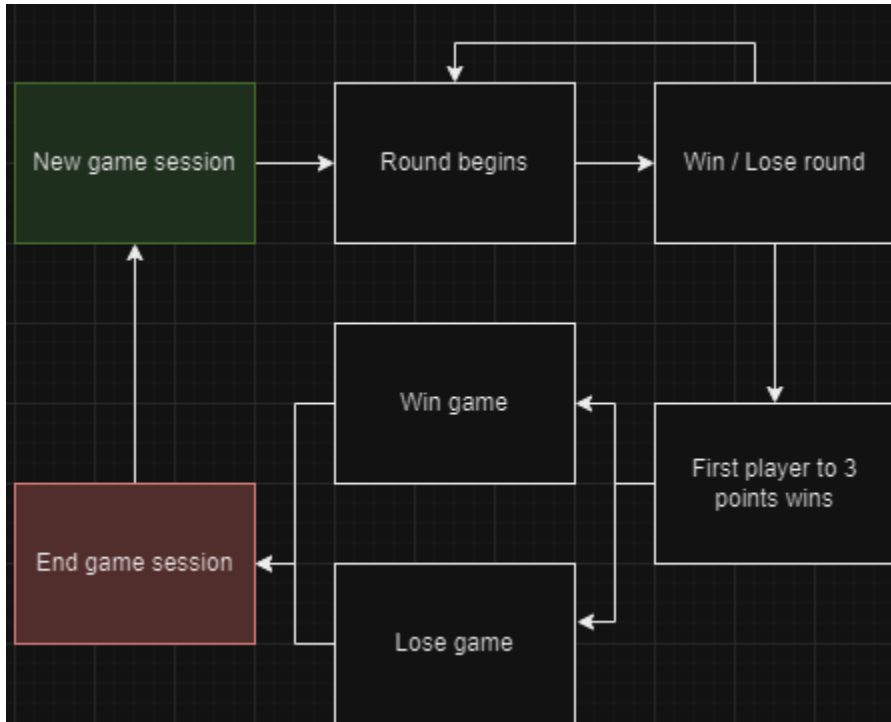


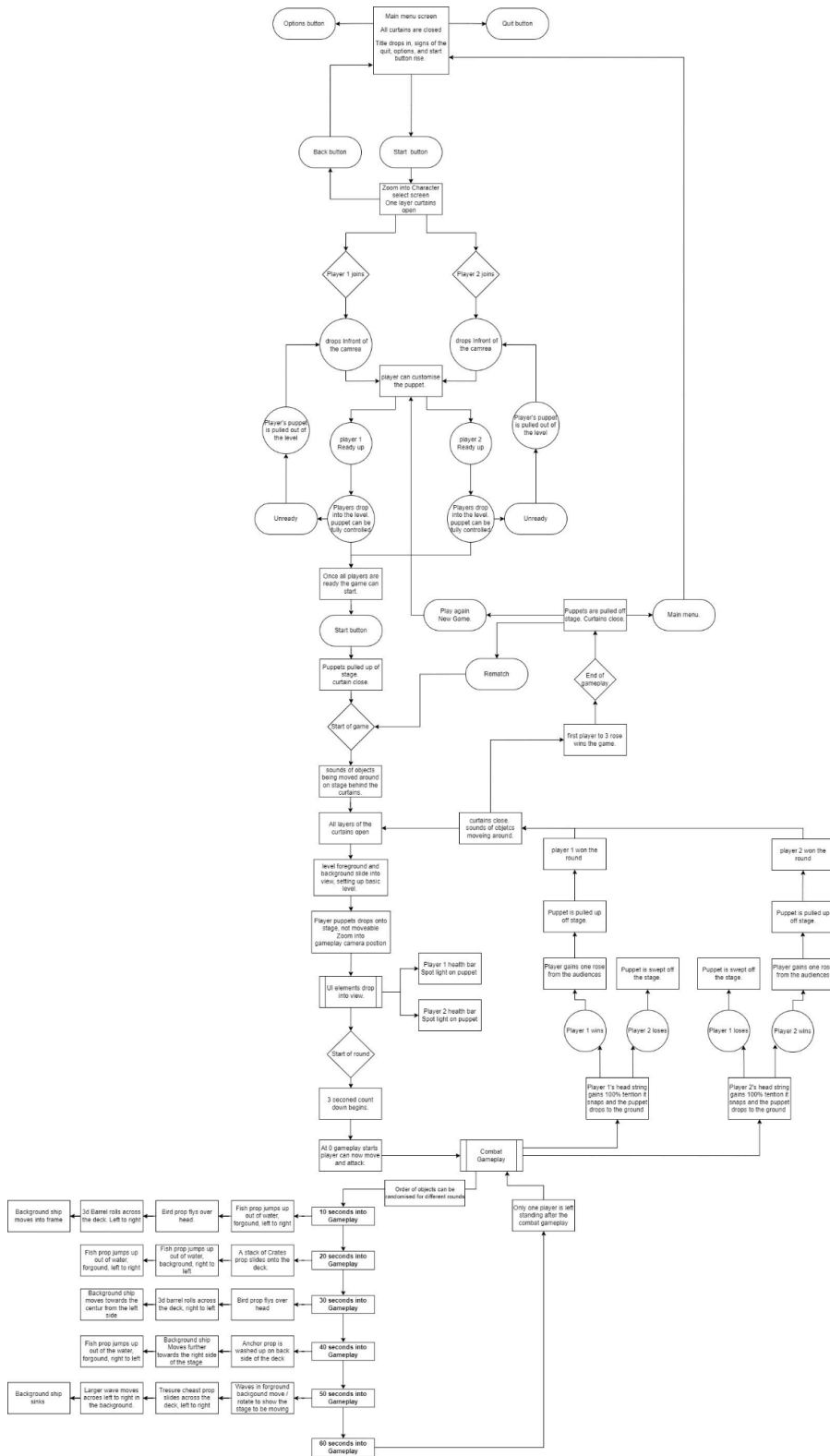
## Attack loop





**Gameplay session loop**







## Player User Interface: Menus

### Main menu

The scene will begin on the menu screen, the menu being integrated into the environment via wooden paddles and signs. The menu will be navigated by moving the cursor (the spotlight)



*Main Menu Screen*



*Character Customisation Screen*

Once play is pressed, the player will load into the [character customisation](#) screen.

Once a player has finalised their character, the player will be prompted to press a button to ready up. Once both players have readied, the curtains will swing close, the level assets will spawn behind the curtain and the players will be dropped into gameplay.

The gameplay will take place at the [ocean level](#). The game will continue until one player has acquired 3 roses. (max 5 rounds)



*Gameplay example*



## Intermission Menu (Between Rounds)

Between each gameplay round, the curtains will swing close to signify the end of the round. A rose will be added to the player's UI who won the previous round.

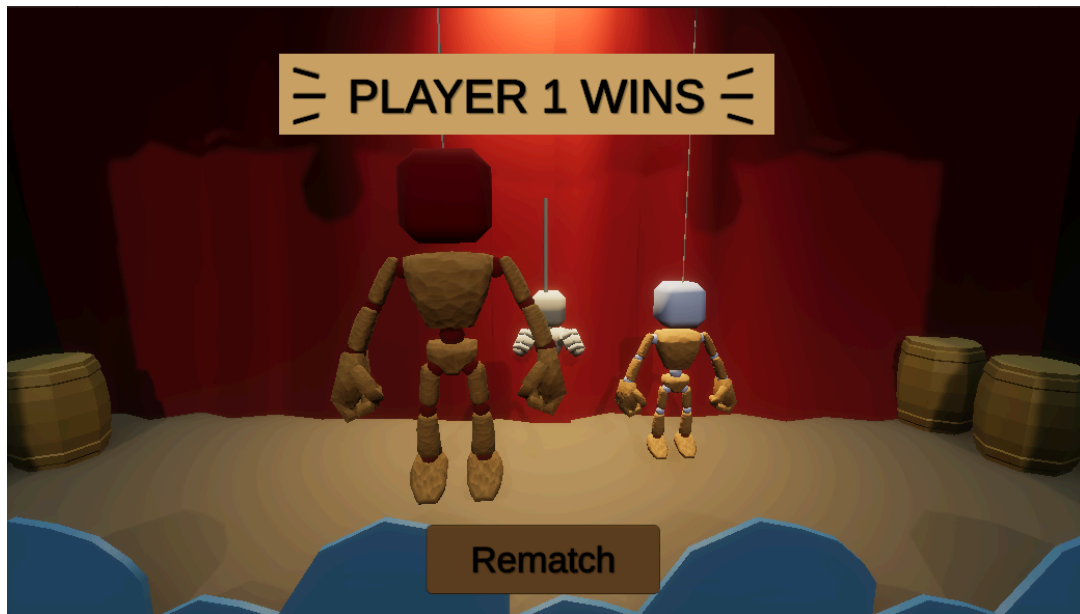


*Between rounds 3 and 4, Player 1 with 2 roses, Player 2 with 1 rose*



## Winner / Rematch Screen

Once a player has won the game, the player x win screen will appear, with the option to rematch. This will send you back to the character customisation screen where the player can continue playing or quit.



*Winner / Rematch screen*



## Character Customisation

The puppet will be deployed directly in front of the camera, giving the player a good view of the puppet and its customisation options. Players will be able to browse through and customise different outfits and heads for their puppet, an arrow sign will be used by each player to indicate what options are selected.



*Player customisation screen*

Once both players hover over the ready sign, they will be dropped into the gameplay stage. This screen will also hold signs explaining the goals and controls of the game, as well as touching on how the UI works.

***Insert tutorial signs pic***

*Tutorial signs on character select screen*





## Player User Interface: Gameplay Feedback

### Strings

Strings will be visible during gameplay, starting as transparent and becoming opaque as they are damaged. Once a string snaps it will play a snapping animation and be removed from the screen.



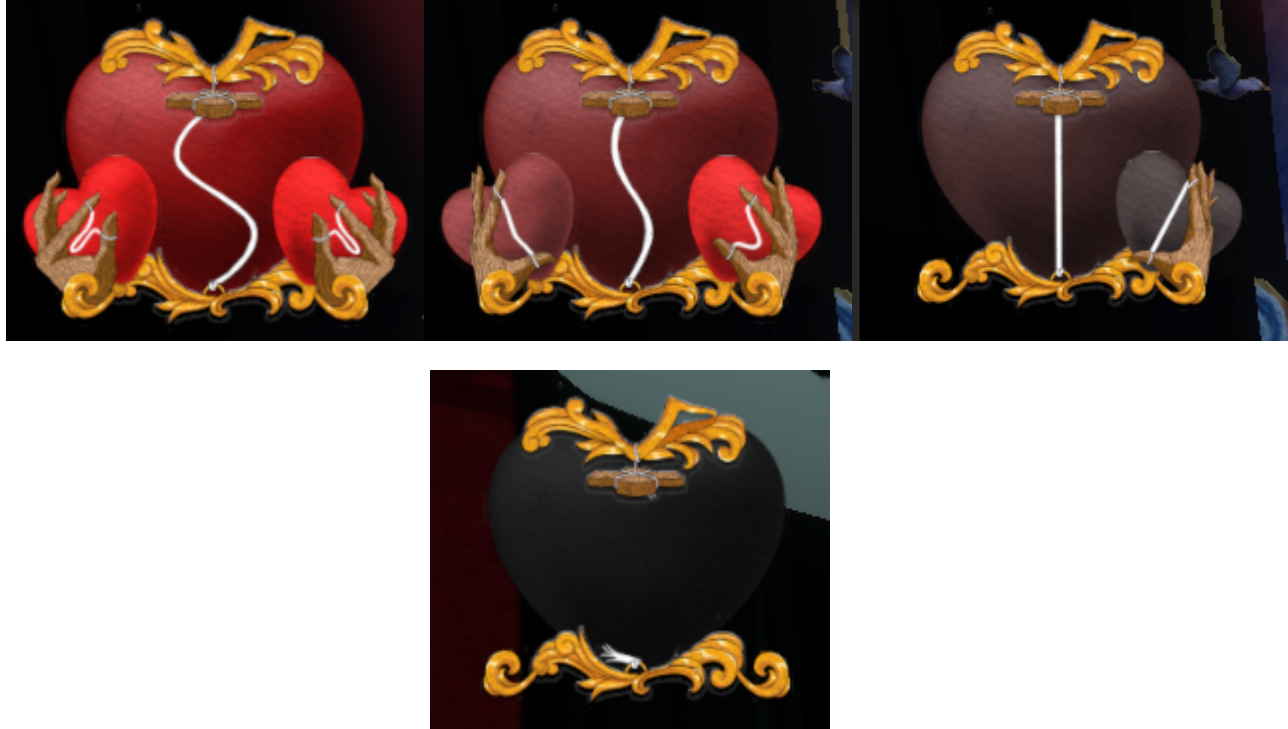
*Strings in game example*





## String Tension

The strings represent the overall health (tension) of the associated limb, more tension shows less health and vice versa. Each of the three strings shown will represent an associated string compared to their position, left arm, right arm and head. The UI will be subtly coloured to represent the colour of the character. (Red for p1 & Blue for P2). Once a heart disappears, the attached limb's string will be snapped.



*String Tension UI overlay in game, several health states.*



## Player Spotlight

An associated coloured spotlight will follow each player around, giving them extra reinforcement on who's controlling who.





## Stage / Level Design

The gameplay level will be based around an ocean/ship theme, with several theatre-like props being spawned throughout the level, some being intractable by the player (knocking over them when walked into, falling apart when touched)

The level will cycle through different random animations of 2D props sliding in and out at random times during the game.

Each 3D prop will have a 1/7 chance to spawn in certain locations per game, each new round keeps the props from the last. The props when the character select screen opens.

As the level progresses in length the props will be dropping/sliding in more frequently, with the game music intensifying.



*Level example #1*

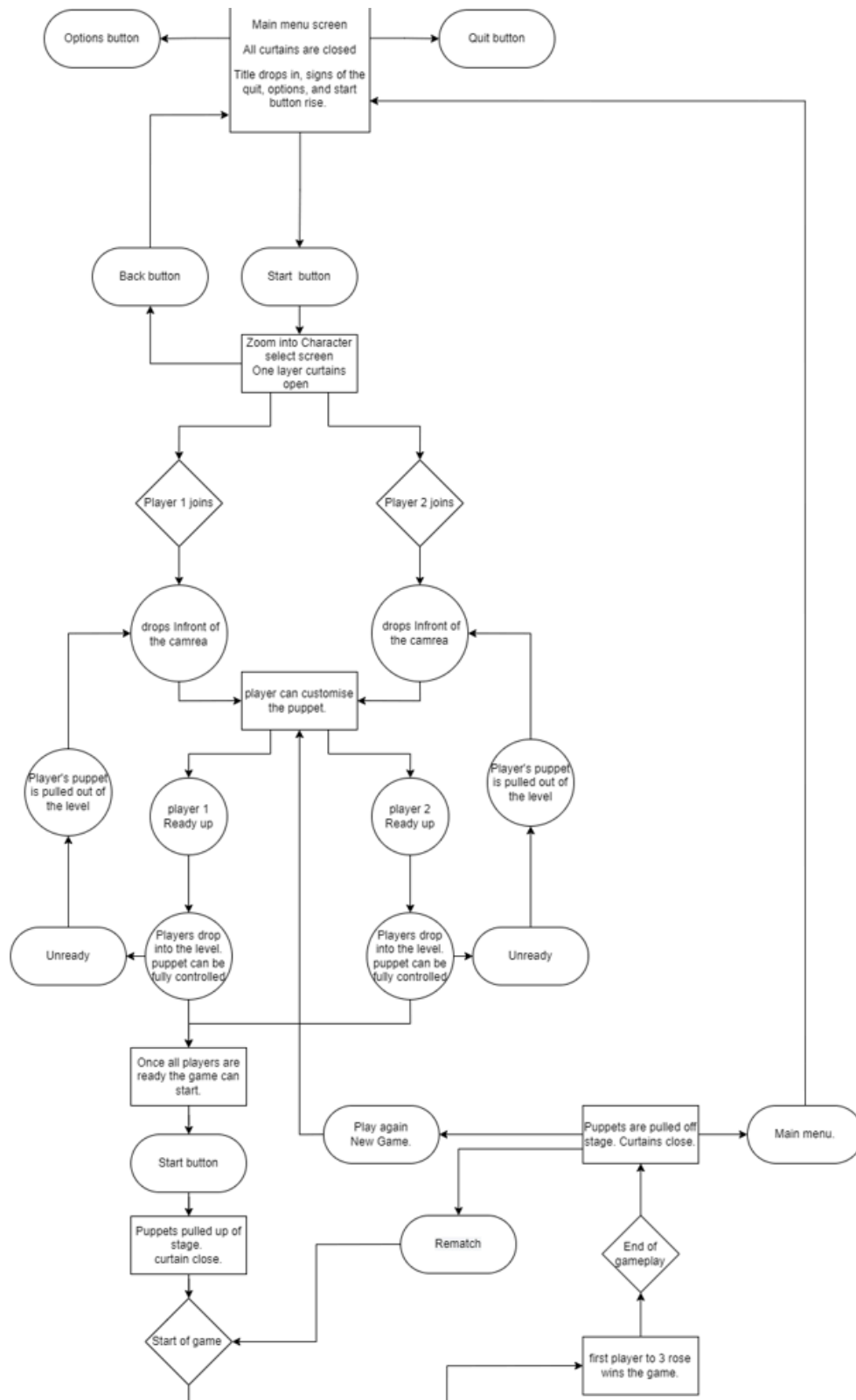


*Level example #2*



*Level example #3*

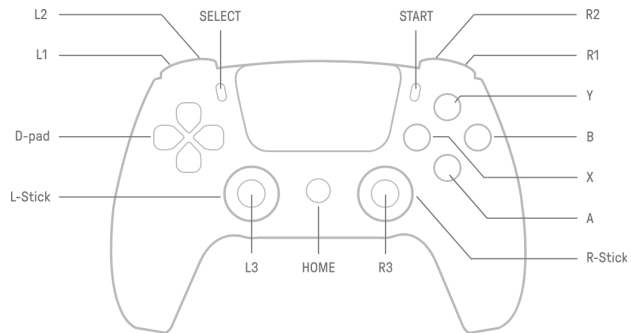
Between rounds, the curtains will close and the stage will reset for the next round. Once a match is over, the players will be shown the [winner screen](#), and then are returned to the [character customisation](#) screen.





## Controls

The game is fully controller-based, trying to mimic the controls of a real marionette puppet. Xbox controller & Dualsense support.



### Controller Gameplay

Button	Function
Left joystick	Move in direction (rotates to face direction), flail
Left trigger (L2)	Left Punch, Headbutt
Right trigger (R2)	Right Punch, Headbutt
Left bumper (L1)	Left Block
Right bumper (R1)	Right Block

### Keyboard Gameplay

Button	Function
W,A,S,D	Move in direction (rotates to face direction), flail
U	Left Punch, Headbutt
I	Right Punch, Headbutt
O	Left Block
P	Right Block



## Prototype Methods

Our initial prototyping is using URP.5

For the prototyping method, we will be using Unity. Building and testing the core mechanics and gameplay in the engine will allow us to get a better feel of the player experience and more in-depth testing in future.

As we have a strong programming team, we will easily be able to throw together temporary prototypes and test an enormous amount of features through this.



*Physics-based character movement prototype, Prototype V1*

These movement mechanics were refined and put onto a rough model and rig of the puppet we will use in the game.



*GIF of the player moving*

Combat mechanics were then added to this with a health system, giving us a working combat prototype.



*Gif of player combat*





## Look and Feel

### Art style ([Art Bible](#))

We will utilise a low poly stylised art style with a mixture of PBR textures and a hand-painted style. The art style combines the grittiness of [games](#) such as *Five Nights at Freddy's* and *Poppy Playtime*, with the childish likeness of games such as *Puppeteer*, and *Little Big Planet*. We will be taking inspiration from the visual aesthetics of theatres/stages/circuses for a lot of the colour choices, using warm rich feeling colours such as red and gold.



Examples of similar art styles.



Colour palette



## Mood boards



*General mood*



## Lighting

The game will have dark lighting with bright contrasts in play areas. It will mimic stage play lighting in actual theatres.



*In-game lighting example*



## Environment

The environment will consist of simple shapes on layered 3D planes. It will take place in an 1800s theatre. The props will all be presented as they are made out of cardboard paper and plywood, looking very DIY and crafted. Everything will have drawn and or painted details.



*Concept of ocean level.*



## Characters

The game will include 4 playable characters which players can select from, these being anthropomorphic wooden puppets of a frog, shark, crow and cat. The characters will have stylized bodies and exaggerated cartoonish proportions. Each puppet will have the same base model and mesh, so the colliders on each will always be the same. The limbs that make up the puppets are all separate, so each will be able to be detached during gameplay.



*Silhouette concepts of each character*

The character colours are determined by which player you are. Player 1 will always be red and Player 2 will always be blue.

Players can swap character heads (for each animal) and outfits to customise their character, the outfit selection ranges from:

- Gentlemen
- Pirate
- Jester



*Examples of each outfit with both red and blue colour schemes on base character*





*Several customised character examples in game.*



## Sound planning

### Player and Combat

Our sounds will mimic the wood clinking and string snapping of real puppets. Combining noises of swooshing air, wood cracking, splintering, rattling and snapping will be enough to create most of the combat sounds. These will be edited to ensure the sounds are punchy enough and sufficient feedback for the player (as well as the animation).

- [Example](#)

### Props

The props will be heard sliding in on metal screeching wheels, using a left and right channel to give the illusion the objects are sliding in behind the curtain. When punched, they will have their breaking sounds similar to the player's sounds of wood on wood colliding and snapping. Fabric swooshing will also be used to replicate curtains swinging open and close.

- [Example](#)

### Audience

There will be an invisible audience present in the game which will be used to add some feedback to players' actions. If the fighting stops for too long, the audience will boo the players. If the fighting is fast-paced and intense, they will cheer the players on.

### Ambience

Different ambience tracks will be used to separate the three sections of our game. The menu, the character customisation and the level (gameplay section). They will mostly consist of the audience chatting and a band rehearsing/testing their instruments. This will again really support the idea and create the illusion of being in a theatre full of people. During the level, a beach-themed ambience will play to build off the ocean/ship theme.

- [Example](#)



## Music

Only one music track will be present in the game, during the combat section. This music will be orchestral and heavily theatre inspired, to further build the 1800s theatre theme. The track will be fast-paced and energetic, reflecting the intense fast combat gameplay.

- [Example](#)

## UI

Our most important sound will be our string snapping. This will be seen in the UI but also heard by the player as the string snaps. As string snapping is one of our core features, we want to emphasise this. It will be created by plucking a guitar/violin string and adding a long build-up to replicate tension slowly building.

A spotlight noise will be heard as you navigate through the wooden signs in the menu, with a subtle noise of wood rattling when options are selected. This will reinforce the diegetic UI presented at the level.

- [Example](#)

## Narrator (CUT)

A narrator will be present similar to the audience. They will give similar feedback with quips and statements towards the players directly.

Statements like “Ooohh that’s gonna leave a mark!” and “Sir Crow wins the game!”

They would guide the player through the game, being used for the countdown until the combat begins and an overall announcer of what’s happening on stage.

## Licensing and Software

We will source a majority of our sounds from [Soundsnap](#), any others being Foley sounds recorded and edited by our team using Audacity and Fmod.





# Technical Limitations (TDD)

## Particles limits

The team could potentially use particles for both displaying the stings of the puppets and using the dust particles in volumetric lighting. This means that it might be a good idea to display the strings in another way due to performance impact and limitations.

## Lighting limits

While using the HDRP lighting pipeline, allows the team to use more expensive lighting, however, there is a limitation on the number of lighting elements, both baked and real-time. This limit is 3 lights per scene.

## Coalition issues

How would the hanging puppets coalition with other objects in the scene without freaking out?

## Physics-based animations

There are potential issues that might occur when using physics-based animations over just normal animations for character actions.

## Hardware limitations

Talk about what we expect our minimum specs would look like and also the recommended specs.



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## Minimum Specs

OS :  
Processor :  
Memory :  
Graphics :  
Network :  
Storage :  
Additional Notes :

## Recommended Specs

OS :  
Processor :  
Memory :  
Graphics :  
Network :  
Storage :  
Additional Notes :



## Scope and Resources

### The Team

#### Programmers

Lochlan McDonald - Lead Programmer  
Gabriel Ubay  
Joshua Zurcas

#### Designers

Brodie Frazier - Lead Designer, Producer  
Aaron Sciretta - Designer, Lead QA  
Zachery Dyer - Designer, Co-Producer

#### Artists

Rachel Missingham - Lead Artist  
Elijah Salvana  
Alisha Frendo  
Gian La Verde  
Deaken Perera



### Scope Overview

Follow the link to a Google sheet that contains Alpha scope, Asset List, Task, Day to Day/Standup.

[Scope Overview](#)

[Technical Design Document](#)



## Milestones

### Pre-production 20/09/2023 - 27/10/2023

What is expected by the end of pre-production

During pre-production, the team will have a **teacher panel**, and an **industry panel**, for both of these the teams will be presenting their projects.

For the teacher panel, the team will need a sell sheet, a pitch presentation...

For the industry panel, the team will need...

### Alpha 1/11/2023 - 10/11/2023

What is expected during alpha

During alpha the team will be working towards building block-outs / grey-box of the game, the goal is to have the intended "fun". This includes core mechanics implemented (bugs included) and placeholders of

art and visuals, sounds, particle effects, and UI menus, if you expect to see something in the final game, the game should include some sort of placeholder for it in alpha.

What is expected by the end of the alpha

By the end of alpha, **all** "first pass" assets should be in the game, and the game should feel like the intended experience. On the 10th of November the Friday, the alpha build is due and required to be a ready build.

**The alpha deliverable has been met**

### Beta 15/11/2023 - 24/11/2023

What is expected during beta

Feature lock, this is the time when the team will finalise features and no longer add in new ones while updating the assets outlined in the alpha build.

What is expected by the end of the beta

By the end of beta what is the core of the game should be implemented with mostly complete assets. mostly polished art assets replacing placeholders, the game should look and feel like the final product.

**Beta deliverable**



## Gold 29/11/2023 - 8/12/2023

What is expected during gold

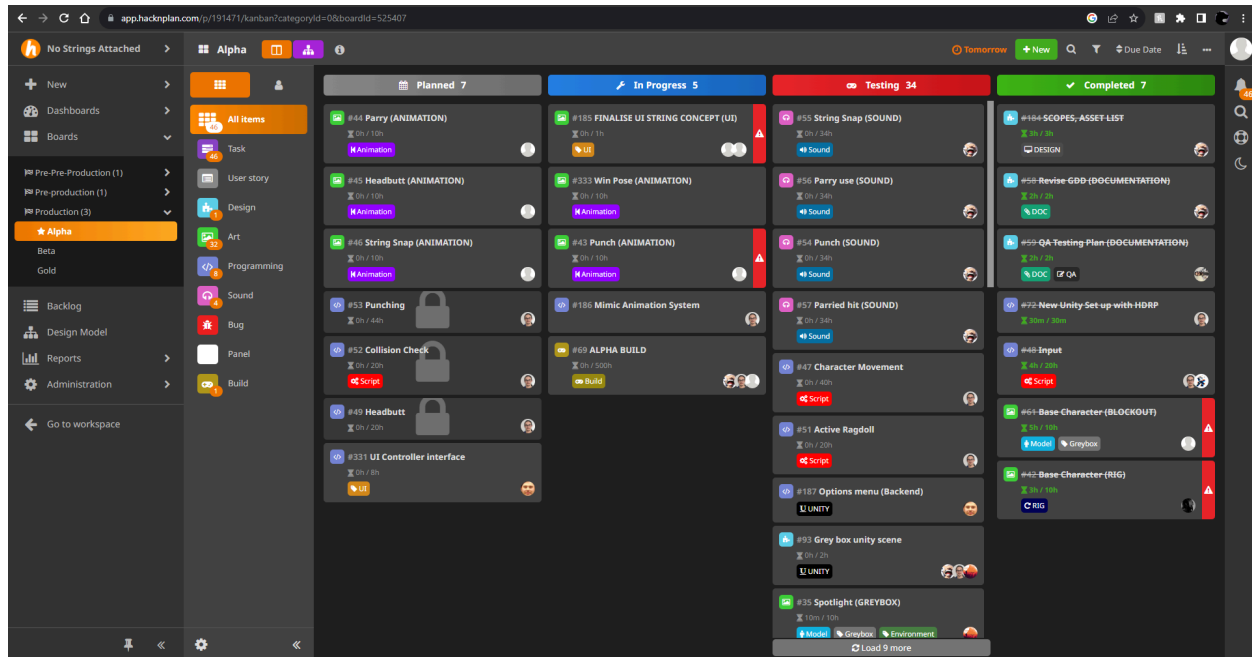
The goal during gold is to polish off mechanics and features, working to fix bugs and optimising the game.

What is expected by the end of the gold

By the end of gold, the game should be complete to the intended experience.

### Gold deliverable

A screenshot of a board from Hack and Plan.



The asset list, Gantt chart and the burndown chart can be found in the scope overview document [here](#).



## Research & Influences

### Sound influences:

- Puppet movement: <https://www.youtube.com/watch?v=abQkOTmzNr4>

### Character and art influences:

- Uhh circus and theatre
- **LittleBigPlanet 3**, Sony Interactive Entertainment: <https://www.metacritic.com/game/littlebigplanet-3/>, the character design and proportions. The cardboard environment-feel with them being drawn over



- **The Jackbox Party Pack 3**, Jackbox Games: [Jackbox Games - Trivia Murder Party](https://www.jackboxgames.com/games-trivia-murder-party), the dark and stylised feel of the art style



- **A Juggler's Tale**, Mixtvision Games: <https://ajugglerstale.com>, We were inspired by the artstyle and feel.





## Mechanical influences:

- **Gang beasts**, Boneloaf: <https://gangbeasts.game>, Our overall character movement and ragdoll feel was heavily inspired by gang beasts as well as their unique take on their character controls
- **Real-life string puppets**, How the weight physics and string physics work for real puppets.
- **Street Fighter**, Capcom: <https://www.streetfighter.com>, Our health system was heavily influenced by the health mechanic used in this game.

