ZANSHIN

GAME BiBLE

VERSiON 1.8

TEAM 66FORG

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DESIGN HISTORY

This is a brief explanation of the history of this document. Each version of this document is based on when a document is released for feedback/review, or major changes/additions have been made.

Version 1.0
Creation of the Document

Version 1.1
Gameplay Controls
Game Mechanics
      Basic Direction Controls
      Advanced Movement Controls
      Combat

Version 1.2
Game Mechanics
      Health
      Energy
      Customizable Arrows Part 1

Version 1.3
Game Mechanics
      Customizable Arrows Part 2
      Dynamic Arena Assets
      Game Modes
      Dynamic AI
      The Arenas
Camera

Version 1.4
Game Characters
Game Interface
Musical Scores
Appendix
      Target Audience
      Competitive Analysis
      Screen Flow
      Objects Appendix
References
Contact Info

Version 1.5
Extra Miscellaneous Stuff
Legend for the Images and Tables
Objects Table List Updated

Version 1.6
Contents Updated
Multiplayer

Version 1.7
Bloody Hotel Arena
Technical Appendix
Game Interface Updated
Grammar corrections

Version 1.8
Updated for Beta

Archery is the new trend in this futuristic blood sport, where prisoners kill each other's for the amusement of spectators

Zanshin is a futurist first person shooter with an emphasis on bow and arrow weapons combat, where players will have an array of different arrows to use. Fighting through different arenas, players will have to work together in teams to achieve vitory. In Zanshin precision and timing are of essence, hitting a player in the head is a guaranteed kill, also knowing when to fight or flee is a valuable technique.

DESIGN PHILOSOPHY

Arrow Physics

Being a game focused on the use of Arrows and Bows, it's only natural that most of the experience revolves around the simulation of both of these elements. With this in mind, the simple act of shooting an arrow must feel strong and satisfying, as well as hitting a difficult target should feel rewarding.

Minimal & dynamic cover

In Zanshin we will encourage players to fight in the open giving bursts of cover to force players to move from location to location as they engage in combat. Ammo is a valuable resource, but are only available in high risk high reward locations, encouraging players to hold those sections. With this we aim for fast paced matches, and trying to eliminate "Camper" Tactics.

The right arrow for the right time

With distinct types of arrows and bow loadouts, players have the option to equip combinations of arrows to gain the advantage over their rivals. Player will have access to different kind of arrows that will grant distinct effects, like slowing down a foe or teleporting your character to different points in the level.

1. What is Zanshin?

Zanshin is a PC game, where players battle against each other in dangerous arenas, using only a bow and different types of arrows as their weapon. The game is set in a futuristic Cyberpunk world.

2. How many characters do I control?

Just one. Players take control one prisoner, fighting for the amusement of the fans of a blood sport. However we will have teams of up to (6v6) with six players of the twelve as humans and the other six as AI.

3. What does Zanshin offer that I can't find elsewhere?

In Zanshin our focus is on the combat using the Bow and Arrow, usually in other FPS's, the bow is implemented as an exotic weapon, in this game it's the only choice.

Most FPS's open up the chance for "Camper" type players that usually sit around in a section of the map killing other unsuspecting passing ones, but not in Zanshin. With a limited amount of ammo, players are always on the search for more arrows and also special types of it, thus making it essential to move through the levels.

4. How is your game different/similar from Towerfall?

Towerfall is an amazing game, we drew a lot of inspiration from it, but unfortunately it is limited to the 2D dimension, which brings some drawbacks. In Zanshin. we can explore the 3D options for this type of game, but also bringing more options like the customization of arrow combinations and different play styles.

5. What are the goals/objectives of the game?

Zanshin was built on the Team DeatchMatch mode, where the team with higher scores is considered victorious. To support this the levels also contains Capture Points that will grant a constant flow of points to the team, thus making it really important to hold this points and neglect it from the opposing team.

6. Where does the game take place?

Zanshin takes place in a futuristic Japanese cyberpunk world where the richest of the rich pay to have convicts compete against one another in order to regain their freedom. As each of these games are hosted, the arena that these convicts compete in changes and adds death around every corner.

7. But, why Bows and Arrows?

Every big First Person Shooter is now featuring Bows and Arrows as the exotic and special weapon, we want to carry on this hype by making the bow the only weapon. The excitement and reward of landing a perfect arrow shot is something that players enjoy, and this is completely possible with the use of the bow.

The controls in Zanshin are aimed at both the Xbox One controller and Keyboard and mouse input. The system was developed based on the most common FPS schemes.

Xbox One

Image 1 | Xbox One Controller

Keyboard and Mouse

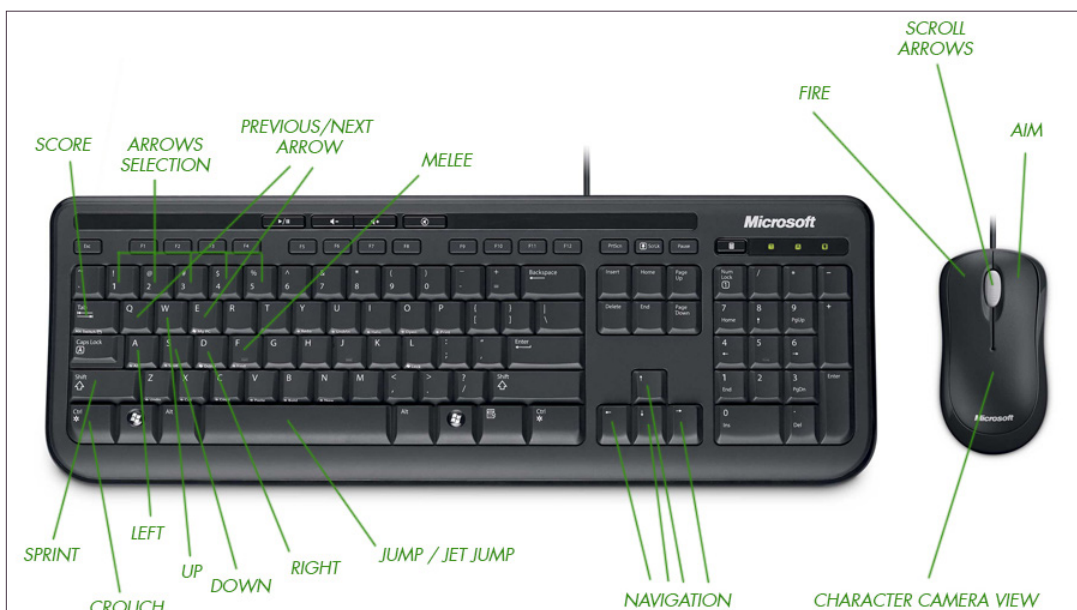**Image 2 | Keyboard and Mouse Controllers**

OVERVIEW

In Zanshin the core game play is about precision , timing and quick reflexes, knowing when to shot an arrow, when to run and what type of arrow to grab. Players will be constantly moving and dodging enemy projectiles with a variety of moves like running, jumping and the special |et |ump, a stronger jump that rockets you up some meters. Shooting the bow is about pulling the strings, and timing the speed of the arrow, to the speed of the enemies. The act of shooting the bow is a three step proccess, where you first load your arrow, you aim with the bow and put some tension into the strings, and then you release the arrow. We also have a fast shot, where by just clicking you shoot an arrow, that will do the same damage, but will go with fly with less speed.

BASIC MOVEMENT CONTROLS

Character movement in Zanshin follows the standard controls of FPS shooters, moving the player through a first person view.

- The character vision simulates a real human vision with some limitations to the peripheral vision.
- The player can always see it's arms and hands, and the central point is usually the weapon it is holding.
- The player moves with the camera, since it is attached to the pawn's head.
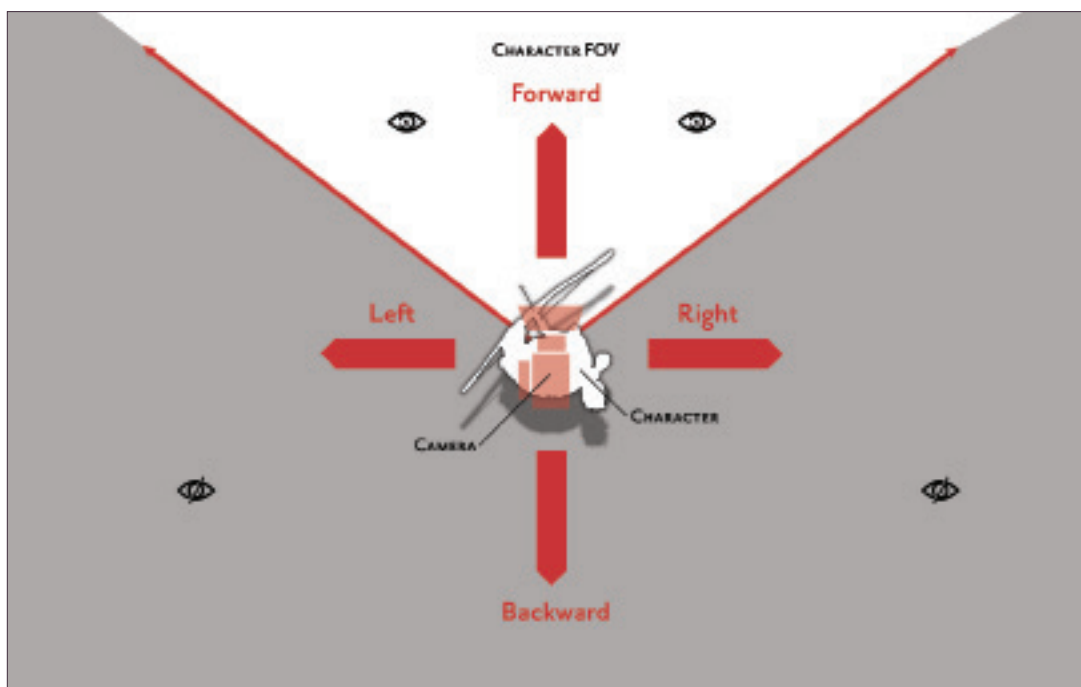
Image 3 | Diagram - Character movement top down view

Direction Controls

Image 4 | Character movement with keyboard keys and Xbox stick

- The character movement in the world is controlled by pressing W,A,S,D on the keyboard, and with the 8 Axis directions on the Xbox Controller.
- The character normal movement is 400 Unreal for every second a key is pressed.

Keyboard Control	Action	Description
W	Forward Backwards	Moves the character in the direction that camera is facing.
A	Left Movement	Strafes the character left in the direction that camera is facing.
S	Right Movement	Strafes the character right in the direction that camera isfacing.
D	Backward Movement	Walks the character backwards, towards the camera

Table 1 | Character controls on the keyboard

Camera Control

Image 5 | Camera controls with mouse keys and Xbox stick

- The player arms and weapons are always in the same position on the screen.
- The camera view can rotate from -60 to 60 degrees on the Y Axis
- The player can turn the camera 360 degrees on the Z Axis.
- The camera view is locked on the X Axis
- The camera sensitivity can be changed by the player, but it is set to the default value of 1.0
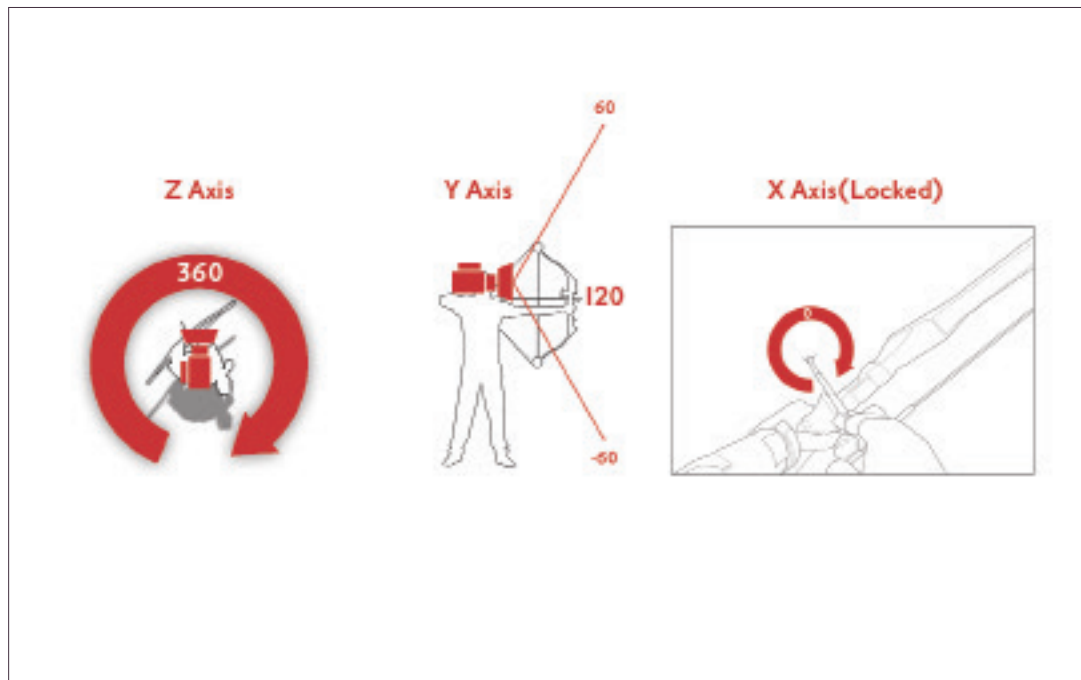

Image 6 | Camera angle constrains in the X,Y and Z axis

In Zanshin players will be able to execute different moves, be it to reach some places faster or to protect themselves from enemy fire. The advanced character movement is composed of the Sprint, Crouch, Slide, Jump and Jet Jump, each one with their own controls.
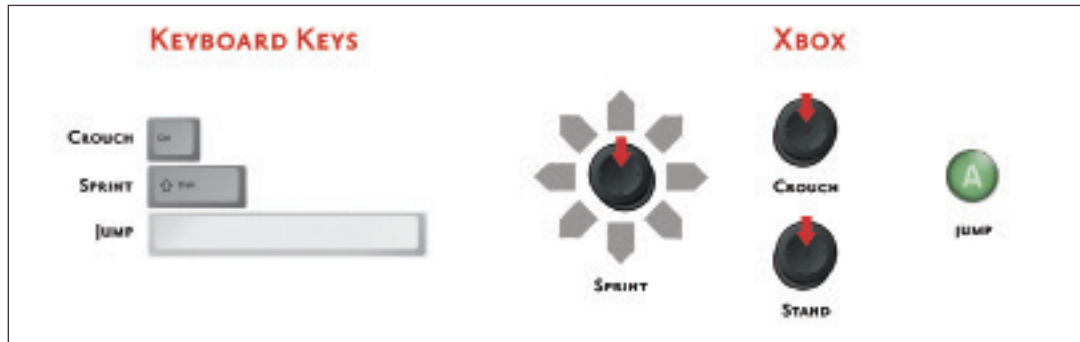

IMAGE 7 | ADVANCED CHARACTER CONTROLS ON THE KEYBOARD AND XBOX CONTROLLERS

SPRINTING

One of the most useful commands in the game, it allows the players to move with increased speed for a short duration of time, based on the characters Stamina. In order to Sprint, the character must be in a walking state. When using a keyboard, pressing the SHIFT key will make the character sprint. On the XBox controller, clicking and holding the left stick in any direction will make the character sprint.

• Player can Sprint in any direction, as long as they have enough stamina to perform it.
• Each character has a Stamina value of 100.
• Every second the character replenish 10 (ten) stamina
• Sprinting consumes 20 stamina per second, which means that players can sprint for 5 seconds.
• When sprinting the characters speed increases from 400 to 700.
• Sprinting only works on the ground, they dont affect Air manouevers like Jump or Jet Jump.
• A player cannot sprint while crouching. If the Sprint key is pressed the character will leave the crouched state, then proceed to the Stand state, then start the Sprinting state.

CROUCHING

When the Ctrl key or Right Thumbstick is pressed, the character stance changes to Crouch, enabling them to hide behind low cover, and making them evade projectiles that would target his upper body. When crouching the character speed is lowered and their collider box becomes half of the height of the character. Pressing the Ctrl key or Right Thumbstick while in the Crouch state will make the character transition back into the Standing state.

• Player's can crouch at anytime, even while in the air
• Crouching does not use Stamina
• The transition to the crouch position is automatic, taking a fraction of a second.
• The character capsule collider height is divided by 2, making it half the height of a normal character
• When crouching the character speed is set to 300, the lowest speed on the game.
• The crouch state makes a character hard to hit, but still enables Headshots to occur.
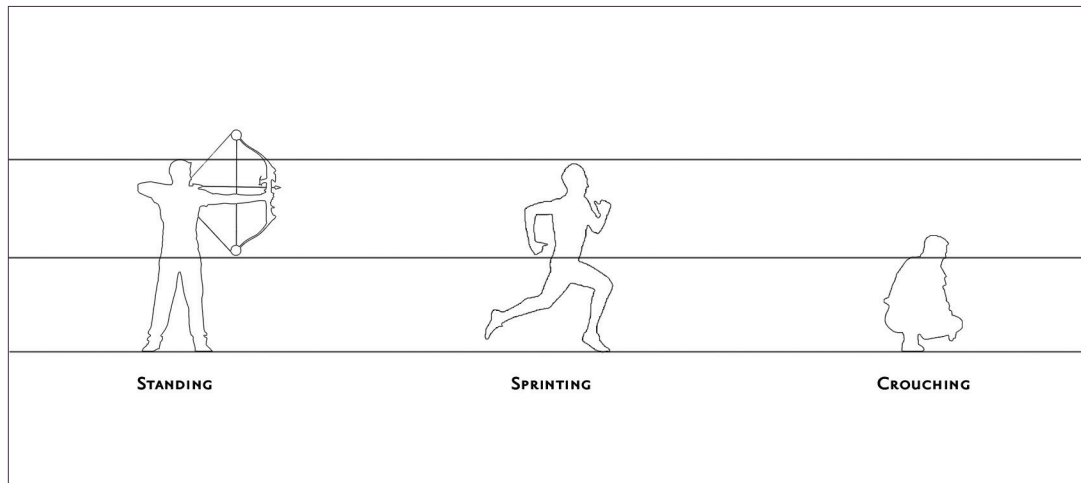
Image 8 | Character height in the different stances

Stance	Speed	Stamina Cost	Collider Height	Restriction
Standing	0	-	1	none
Walking	400	-	1	none
Sprinting	700	25	1	ground not crouching
Crouching	400	-	1/2	not sliding

Table 2 | character stances properties

Jumping

When pressing the space bar or the A button on an Xbox Controller, the character executes a Jump movement. Jumping allows a player to jump over small cover, and even to avoid shots from other players.

- Jumping can be used while on the ground, and never on the air (no double jumps).
- Jumping does not consume Stamina
- The player can still move while on the air with the WASD or Left Thumbstick, but at a slower rate
- Characters take no fall damage
- The Horizontal Jump Range of the character is 2 meters (2uu)

Jet Jumping

The jet jump is another maneuver available to players, by double tapping the space bar or pressing the A button, it lets a player reach higher heights to access better positions on the map. The Jet Jump has a cooldown timer of 8 seconds.

- The Jet Jump can be used anytime, even on air.
- The maximum height of the jump will be 450uu (450 cm/4.5cm)
- The player can still move with the Jet Jump while on the air, using the WASD or Left Thumbstick.
- The player Air control while jet jumping is better than while just jumping
- The player can still attack while jet jumping
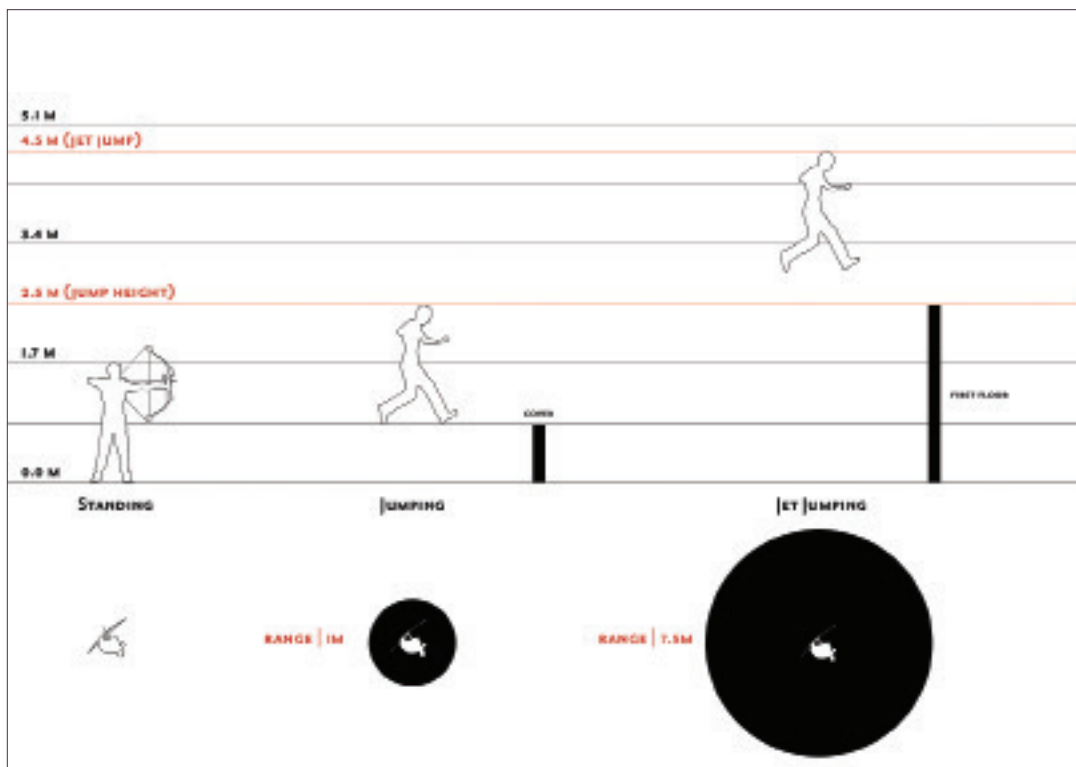
Image 9 | Character jumping range and height
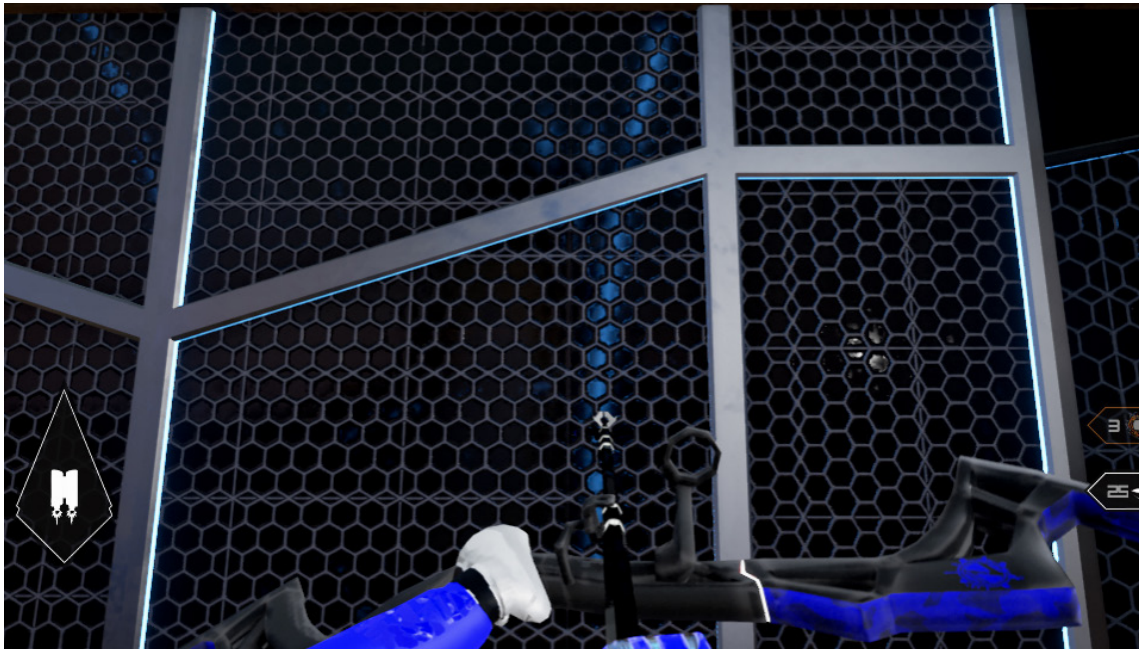
Image 10 │ Jet Jump example, after using it, the hud indicator on the left will start to fill again, so that the player can use it again after 5 seconds

Type	Vertical Jump Height	Horizontal Jump range	Frictional gravity	Total Time in Air	Air Control Allowed?	Air Control Horizontal Speed
Normal Jump	2.5 M	1 METRE	20 M/S	1.5 SEC	YES	0.65 M/S
Jet Jump	4.5 M	7.5 METRES	20 M/S	7.5 SEC	YES	6.5 M/S

Table 3 │ character jumps properties

Zanshin combat is mainly focused on ranged attacks done with the bows. It can also be used as a melee weapon for close-quarter combat, or if a player is out of arrows. To execute ranged attacks players must have at leat one arrow to shoot. The process of shooting is divided into stages, first you select the arrow, the second stage you load/reload your arrow, then you apply the force you want to the string and finally you release the arrow.

Image 11 | switching arrows with the keyboard and mouse, and xbox controller
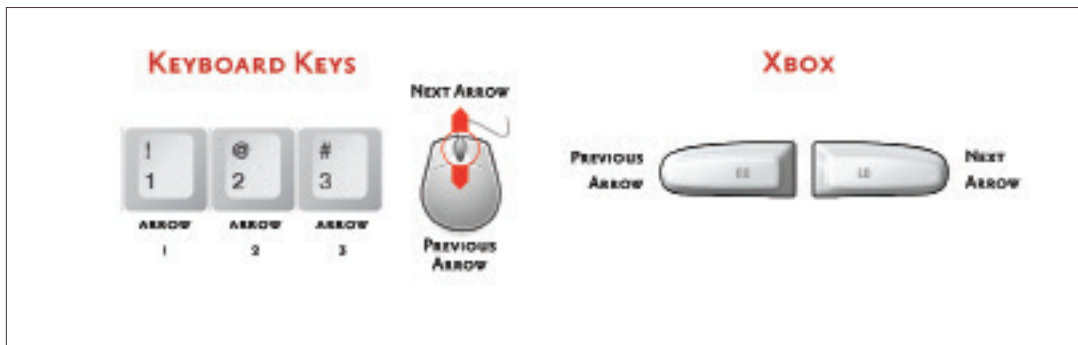
Selecting the Arrow

Arrows can be selected with the number Keys 1,2,3,4 and 5, by scrolling the mouse, or using the Q and E to select between previous and next arrow on PC, or with the Left and Right bumpers on the Xbox Controller. You can only select arrows that you currently have.

Aiming and Preparing the arrow

By default, the player's character is always aiming at something through the HUD Crosshair, and also has the selected arrow ready to be fired. When a player wants to shoot at something, he needs only to press the Left Mouse Button or the Right Trigger on the Xbox, which will imply a force to the bow strings. Player can choose between two types of shots, the fast shot can be used instantly by just tapping the Fire button, or player can aim their shot.

Fast shots will travel less meters, while the aimed shot will go through further distances, so each one has advantages and disavantages. Close encounters are the best moments to use the fast shot, while long shots work best with aimed shots

IMAGE 12 |
NORMAL AIM OF THE
CHARACTER WITH THE NOT
ZOOMED IN CROSSHAIR. BY
PRESSING THE FIRE BUTTON,
A FAST SHOT WILL BE
ACTIVATED, WHICH WILL
HAVE LESS RANGE.

IMAGE 13 |
ZOOMED AIM, HERE THE
SHOT GOES FURTHER BUT
THE PLAYER GETS MORE
EXPOSED.
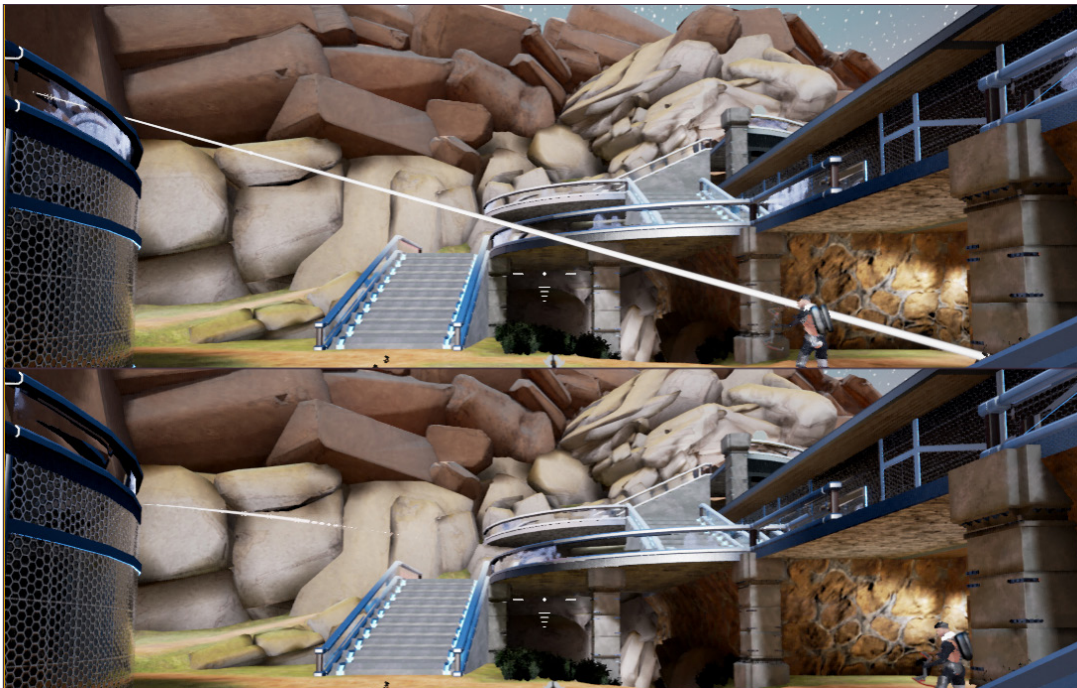
IMAGE 14 |
THE DIFFERENCE BETWEEN
THE FAST AND AIMED SHOT,
WHERE ONE GOES COM-
PLETELY IN A STRAIT LINE,
THE FAST SHOT GOES AS AN
ARC AND WITH LESS SPEED.

Melee Attack

A second function for your bow is to use it as a melee weapon at close range. By pressing the F key on the Keyboard, or the Y Button on the XBox, the character performs a slashing attack in front of him with his bow. The range of this attack is 1.2m from the center of the character

- The collider is created in front of the player, a box with 1.2m x 1.2 x 1.2m
- The melee attack dealts 35 damage
- The animation for the attack is 1 second, where the character swings the bow as a sword

Image 15 | melee attack diagram, when it hits an enemy when it fails to hit

Image 16 | melee attack animation example

HEALTH

This sections details the mechanics surrounding the character health, and how it affects different game play elements. Each character start the match with 100 health points, and they do not regenerate over time, but players are able to collect them from Med Kits.
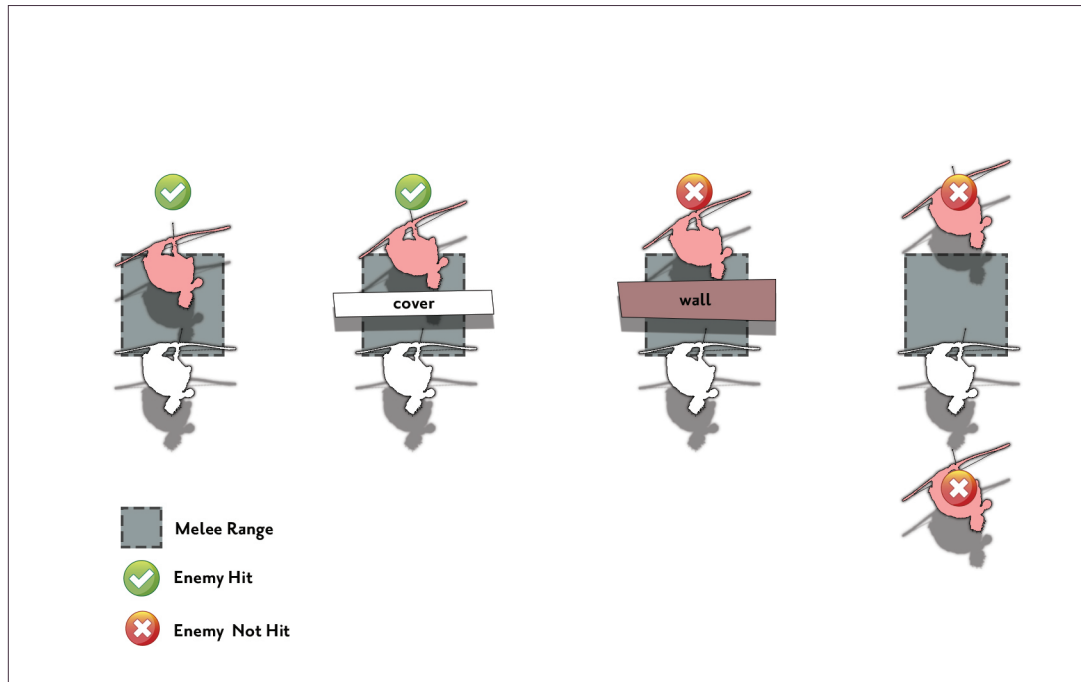
Characters lose health points by being attacked by enemy players and traps on the environment. If a character health reaches 0, he is considered dead and is respawned after some time.

Each character contains different body parts, that can be damaged accordingly, for example, shots to the head are always instant kills, while shots to the arms and legs do minimal damage.

Property	Description
MAXIMUM HEALTH POINTS	100 HEALTH POINTS
MINIMUM HEALTH POINTS	0 HEALTH POINTS

Table 4 | max and min health

Event	Description
HEALTH WHEN MATCH STARTS	100 HEALTH POINTS
HEALTH VALUE THAT TRIGGERS DEATH	0 HEALTH POINTS
DEATH EVENT ANIMATION	2 SECONDS
HEALTH WHEN SPAWNED	100 HEALTH POINTS

Table 5 | health properties

BODY PART	DAMAGE MULTIPLIER WHEN HIT
HEAD	Instant Kill
TORSO	X1.0
ARMS	X0.5
LEGS	X0.5

Table 6 | damage multiplier by body part

Regaining Health

Characters can regain health by picking up random Med Kit drops on the level, where they automatically regain lost health. Health can never go above a players maximum health, making it unnecessary for the player to pick them up.

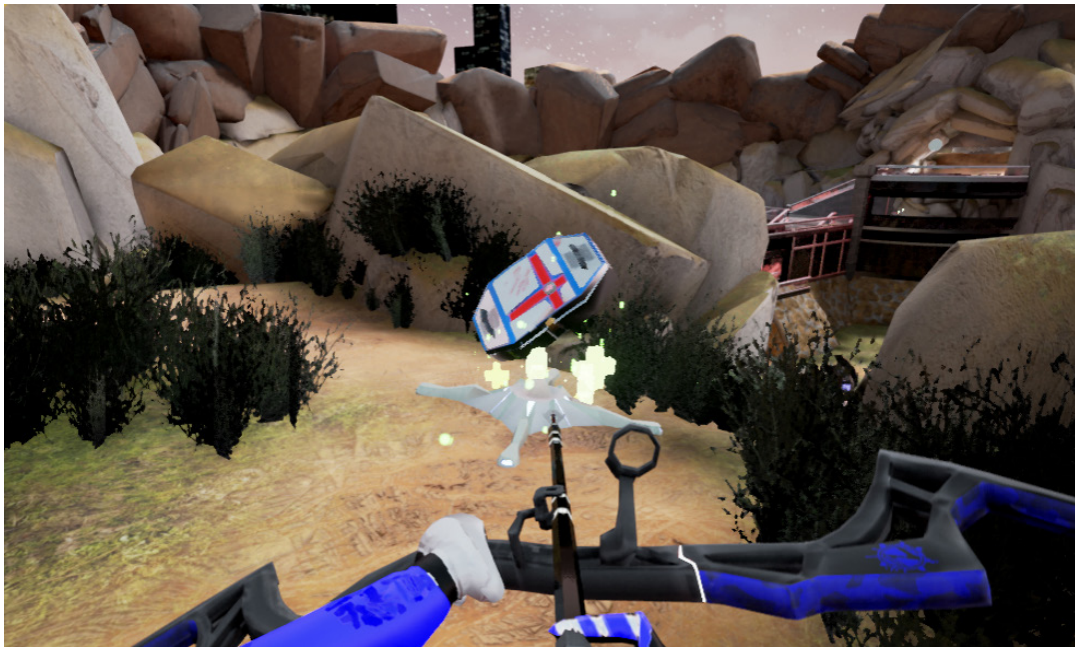| HEALING ELEMENT	HEALING AMOUNT	RESPAWN TIME
MEDKIT	70	15 SECONDS

Table 7 │ healing properties

Image 17 │ health pickup in game model

Image 18 & 19 │ a character that gets the health pickup will regain health, and remove the blood overlay around his hud.

Losing Health

Health Points can be lost by being hit from enemy arrows and enemy melee attacks and environment traps. The following table displays the damage done by all of these elements, and some of those can be multiplied by the body part hit, as stated on Table 6. In Zanshin is also important to know from where you got hit, this is possible by indicating the source of damage with HUD indicators as well as other elements, like camera shakes and audio cues.

Image 20│ example of a character getting hit, the feed-bakc is show by a camera shake, a flash white and red overlay, the health changing and also the hit direction that indicates the damage source position.

Damage Source	Type	AOE?	Damage
STANDARD ARROW	Damage once	no	80
EXPLOSIVE ARROW	Damage once	yes	50
SLOW ARROW	Damage once	no	
TELEPORT ARROW	Damage once	no	
TRACKER ARROW	Damage once	yes	20
MELEE ATTACK	Damage Once	no	25

Table 8 │ damage sources

All the arrrows in the game can be used in specific situation to give player a edge on combat. In total there are 5 different arrows, the Standard, the Slow, the Explosive, the Teleport and the Tracker. Each one with different damage outputs and effects.

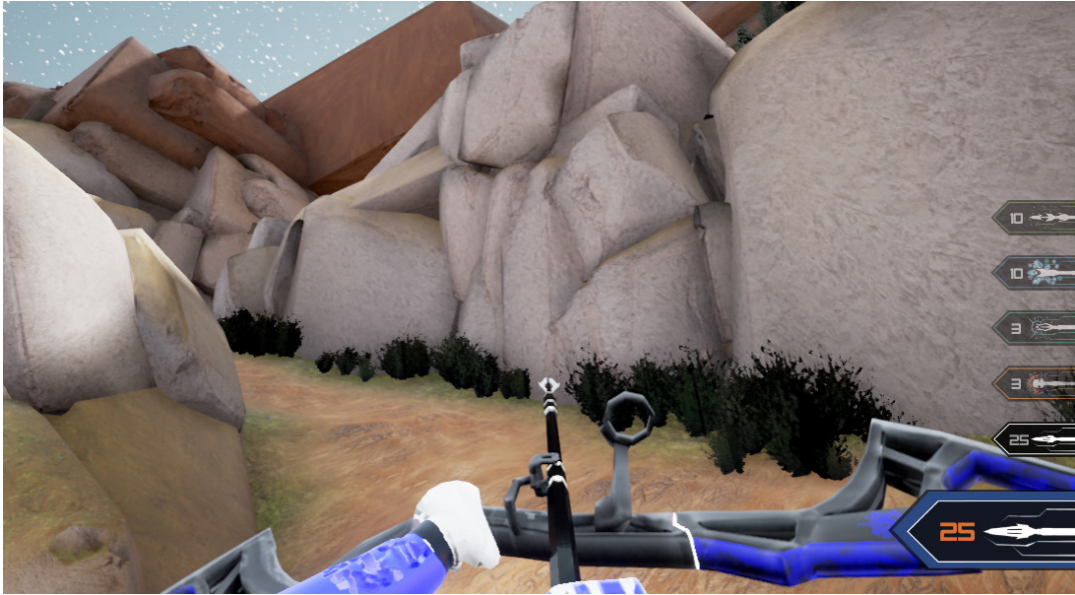**IMAGE 21 │ THE POSITION IN THE HUD OF THE DIFFERENTE ARROWS**

Standard Arrow

These tips are the most basic one, a pointy metal piece created to pierce through heavy armor. The standard arrow is the one hwere players will mostly be using for hitting other players, as it also is the only arrow that allows for a high ammount to be carried.

IMAGE 22 │ THE STANDARD ARROW MODEL AND HUD REPRESENTATION

	DAMAGE	ESPECIAL EFFECT	MAXIMUM AMMO
STANDARD	60	-	35

Table 9 | standard tip properties

Explosive Arrow

The explosive arrow is one of the special arrows you can collect through the scenario in the ammo pickups. The explosive arrows are represented by the orange color, and have the special ability to explode on contact, generating a radius where players that are inside it will take damage.
Players behind covers while crouching and walls are not affected by the range, if on the side that is protect. The radius of the explosion is 4m, 400uu.
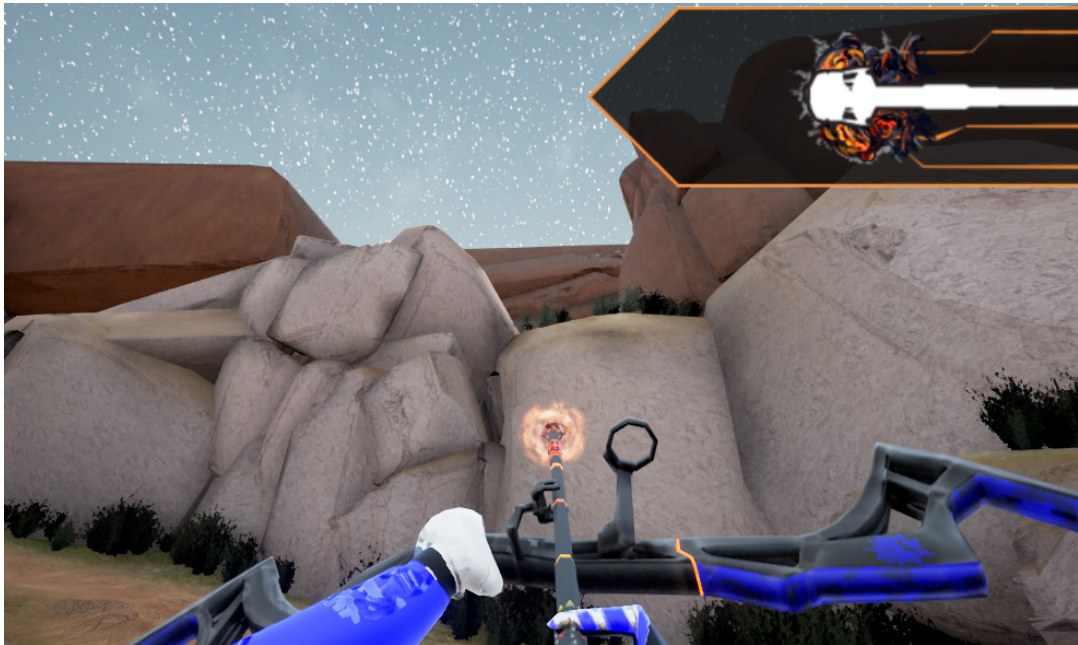
Image 23 | the explosive arrow model and hud representation

	DAMAGE	ESPECIAL EFFECT	MAXIMUM AMMO
EXPLOSIVE	50 (AOE)	AREA OF EFFECT DAMAGE	3

Table 10 | standard tip properties
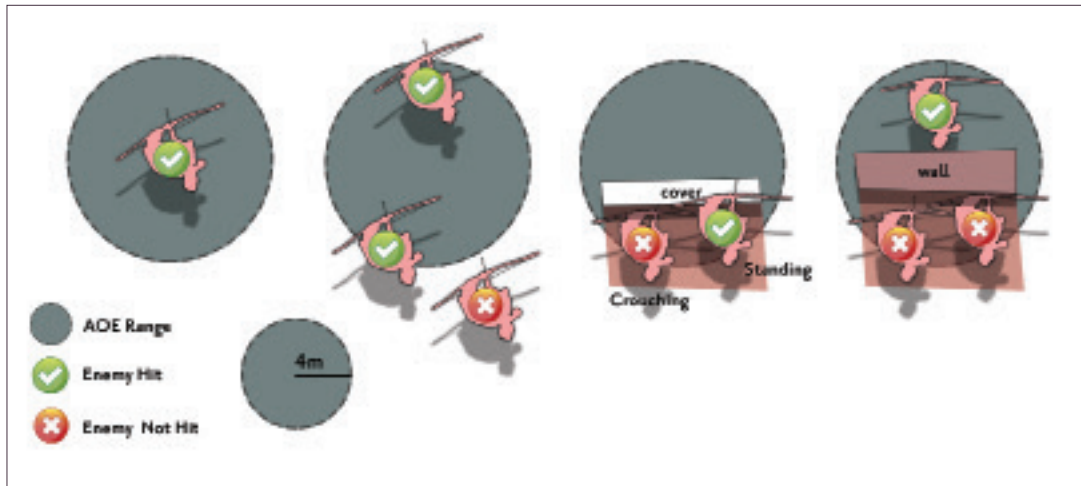
IMAGE 24 | EXPLOSION RANGE AND LIMITATIONS

IMAGE 25 | EXPLOSIVE PARTICLE EFFECT

IMAGE 26 | EXPLOSIVE RANGE OF DAMAGE. CHARACTER 1 AND 2 ARE HIT, BUT NOT 3

Teleport Arrow

The teleport arrow allow players to teleport through the scenario where the arrow hits. This enable for multiple strategies, be it using it combined with a melee attack, or to simply reach high vantage points where you can easily hit players. While teleporting players will leave a trail behind, making it visible the direction from which they shot the arrow and the position they arrived. This makes their path visible, so players that use it should be aware of this side effect.
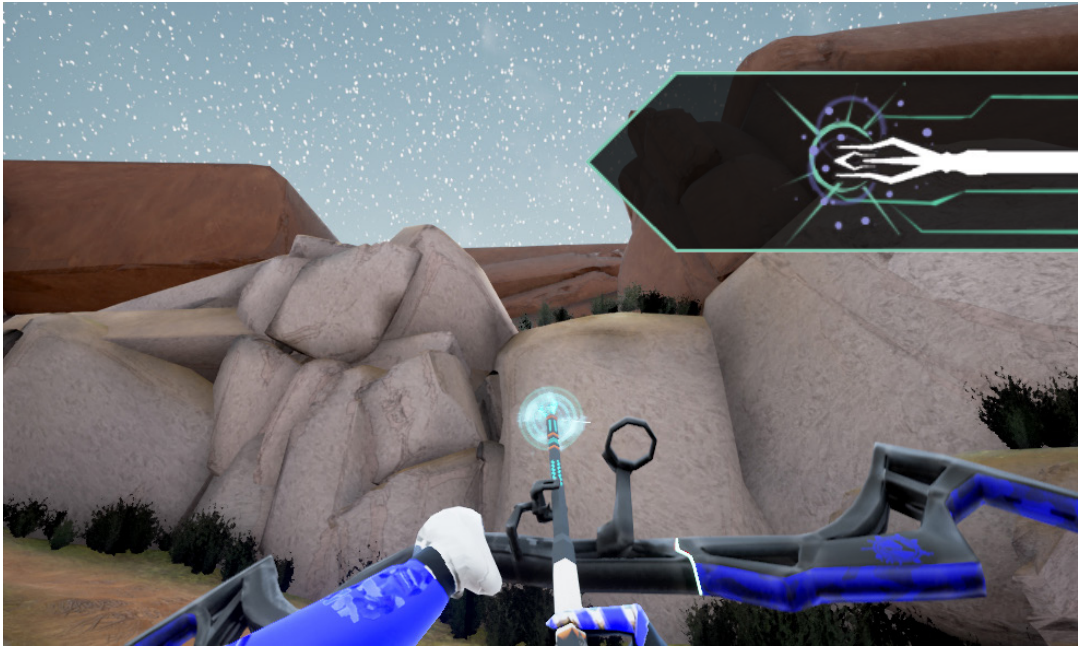
IMAGE 27 │ THE TELEPORT ARROW MODEL AND HUD REPRESENTATION

	DAMAGE	ESPECIAL EFFECT	MAXIMUM AMMO
TELEPORT	50	TELEPORTATION	3

TABLE 11 │ TELEPORT TIP PROPERTIES

IMAGE 28 |
EXAMPLE OF THE TELEPORT
ARROW, WHERE YOU FIRST
AIM AT A TARGET THEN YOU
TELEPORT TO THE LOCA-
TION. AFTER TELEPORTING
THE USER LEAVES A TRAIL
THAT INDICATES WHERE HE
CAME FROM AND WHERE HE
IS GOING.
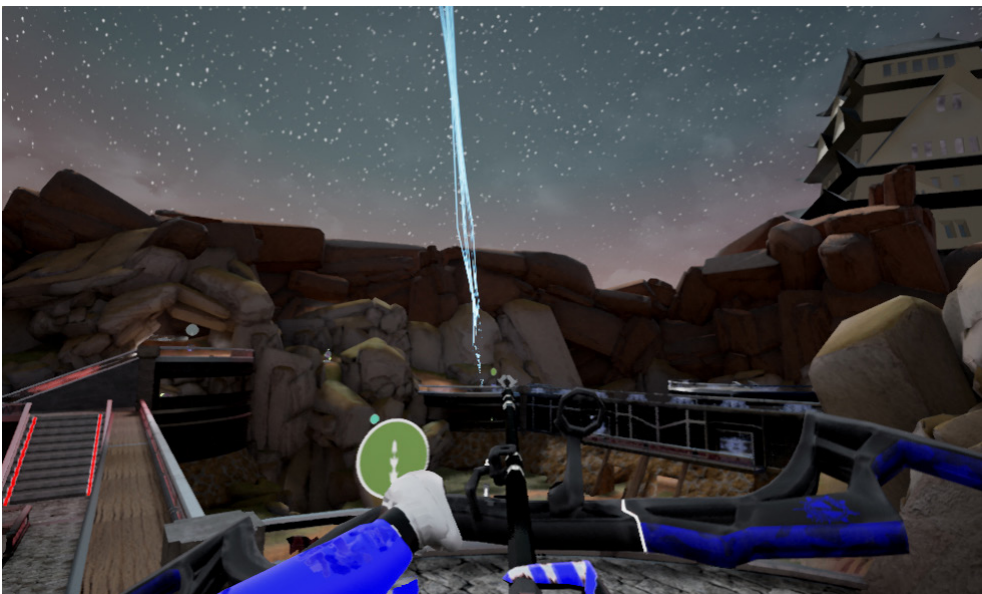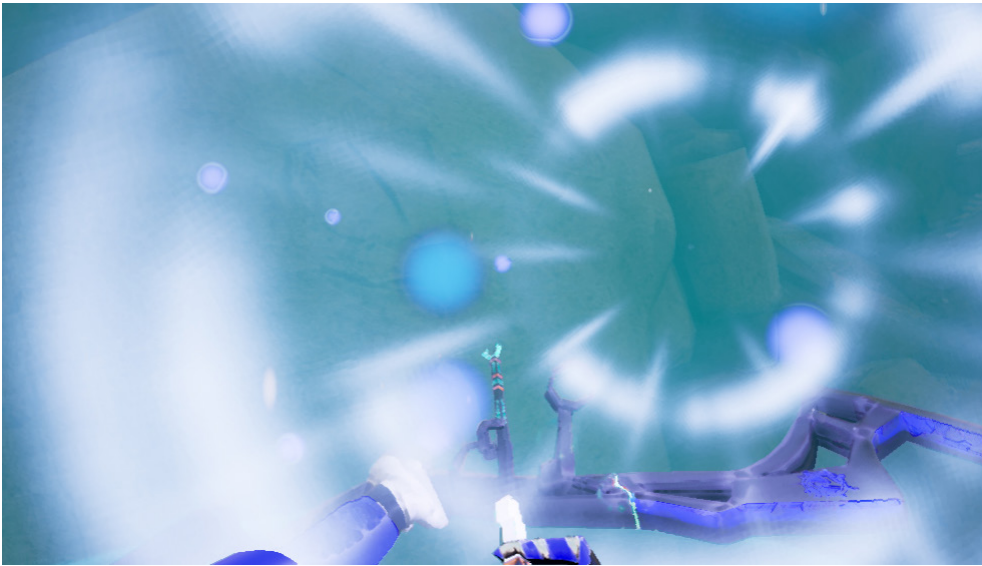
Tracker Arrow

When hit by a tracking arrow, players are visible through the scenario by a shader that highlights them to everybody on the opposing team. While tracked, players will receive a warning in the HUD indicating that they are tracked. Also the next arrow that hits the character make him completely vurnerable to attacks, where the next arrow will result in a instant kill.

if the tracked enemy reaches a MedKit, they will lose the tracking status.
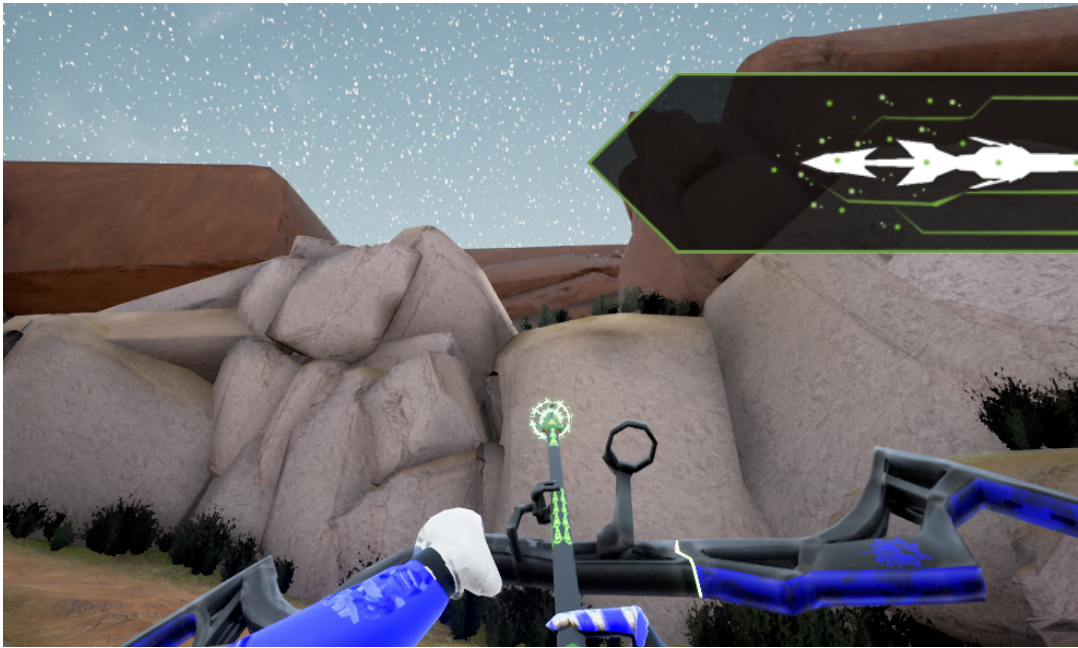
IMAGE 29 | THE TRACKER ARROW MODEL AND HUD REPRESENTATION

	DAMAGE	ESPECIAL EFFECT	MAXIMUM AMMO
TRACKER	20	TRACKED ENEMIES ARE SEEN THROUGH THE SCENARIO. TRACKED ENEMIES VULNERABLE AND WILL DIE IF THEY GOT HIT BY THE NEXT ARROW	10

TABLE 12 | TRACKING TIP PROPERTIES
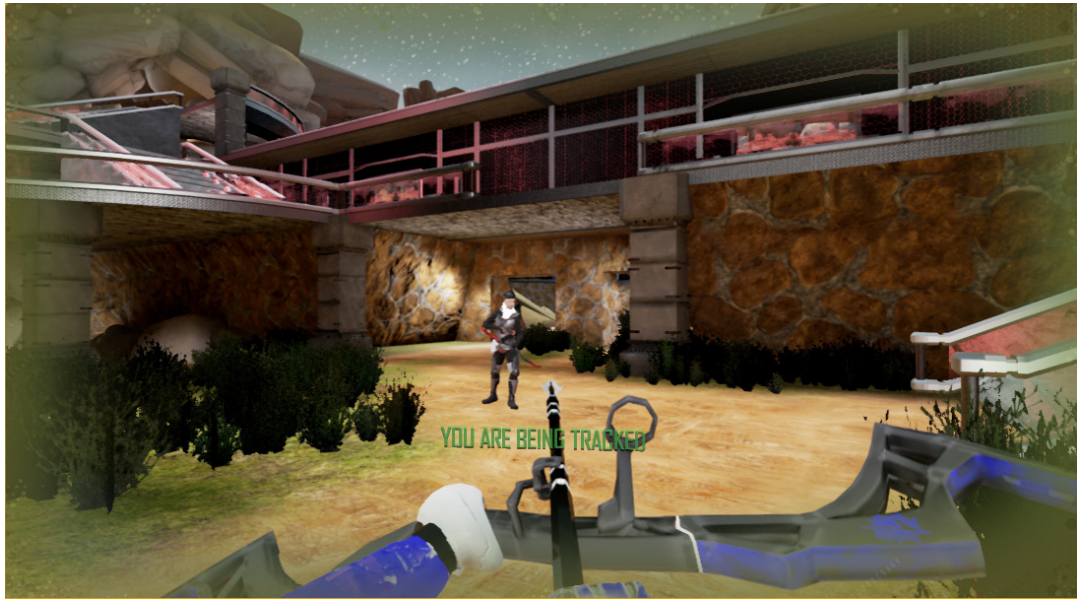
IMAGE 30 │ TRACKED OVERLAY IMAGE FOR WHEN A CHARACTER GETS HIT
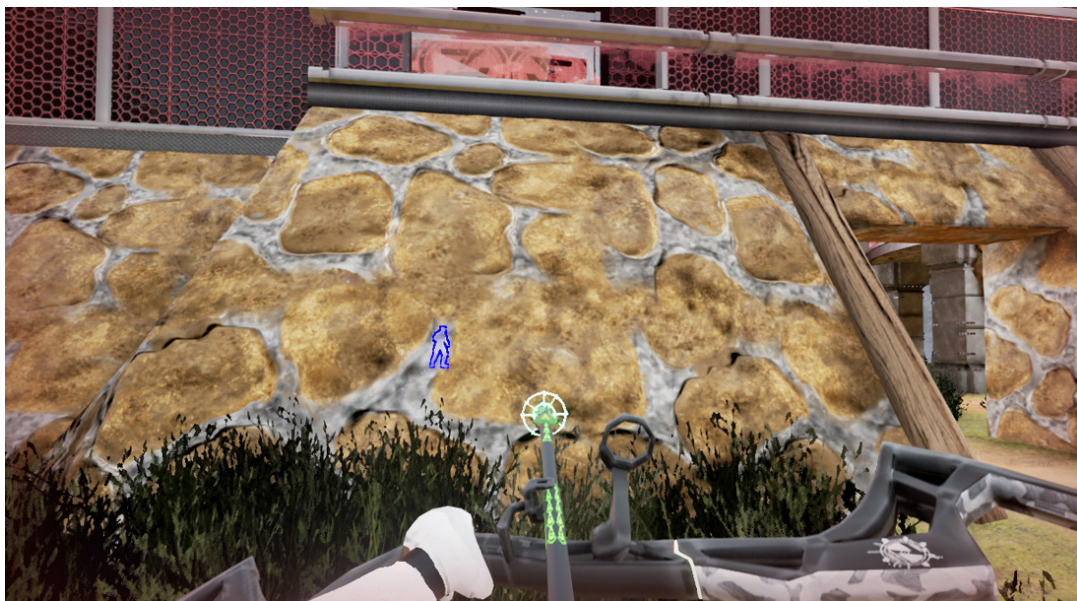
IMAGE 31 │ A TRACKED PLAYER IS VISIBLE THROUGH THE SCENARIO

Slow Arrow

The slow arrows is the last special arrow that players are able to use. It's main use is to slow down characters, making them easier to hit with other arrows or even by the same slow arrow.
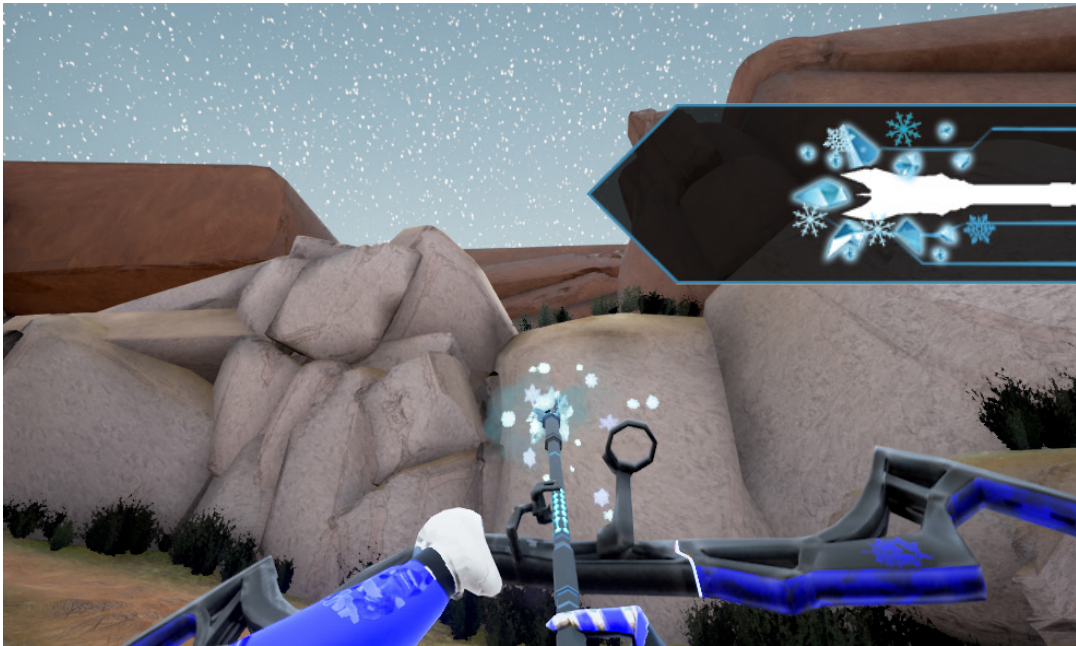
IMAGE 32 | THE SLOW ARROW MODEL AND HUD REPRESENTATION

IMAGE 33 | CHARACTER THAT ARE HIT BY THE SLOW ARROW CAN BE EASILY HIT

	DAMAGE	ESPECIAL EFFECT	MAXIMUM AMMO
SLOW	40	SLOW SPEED FOR HIT CHARACTERS. THEIR SPEED BECOMES 100	10

TABLE 13 | TRACKING TIP PROPERTIES

Ammo Pickup

Throughout the level, players will find pickups of specific arrows that will give a fixed ammount of arrow for the user to shoot. The most powerful arrows like, teleport and explosive are usually found in exposed locations, where the risk and reward factor gets higher.

IMAGE 34 │ TRACKER PICKUP AMMO

IMAGE 35 │ TELEPORT PICKUP AMMO

Each game mode offer different types of objectives and team compositions for the players.

Team Deathmatch

Players are divided into 2 teams fighting for the supremacy of points. The team with the most points at the end wins. Points are awarded in two ways, the first is by controlling objective points on the map, these objective points will grant any player within its bounds bonus points to supporting or offensive style tactics. To control a point, one player from the team must stand around the Capture Point range, and must stand there

Killing players from the other team will also win a team points with no additional bonuses other than performing a headshot.

GAME MODES	PLAY TIME	VICTORY CONDITION	SPECIAL RULES	SCORING
TEAM DEATHMATCH	5 MIN	TEAM WITH MOST POINTS	3 X 3 MATCHES CAPTURE POINTS	CAPTURE POINT │ 100 POINTS(5S) KILL │ 100 POINTS HEADSHOT │ 200 POINTS

Table 14 │ game mode differences

image 36 │ a neutral capture point
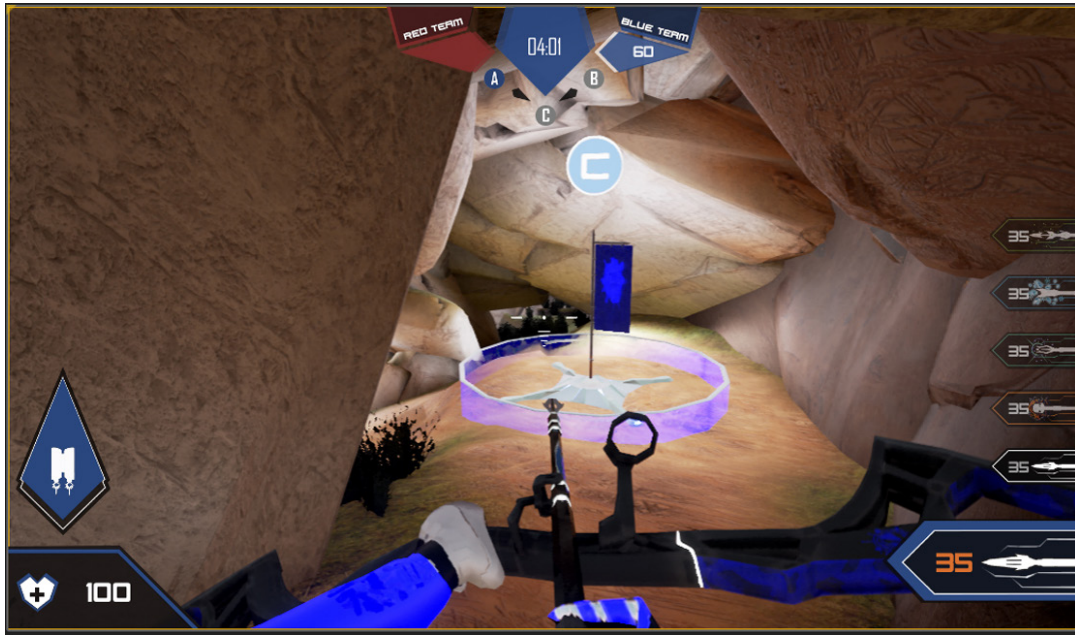
IMAGE 37 │ A CONTROL POINT THAT IS CONTROLLED BY THE BLUE TEAM

IMAGE 38 │ CAPTURING POINT HUD INDICATOR ON THE CENTRAL BOTTOM OF THE SCREEN
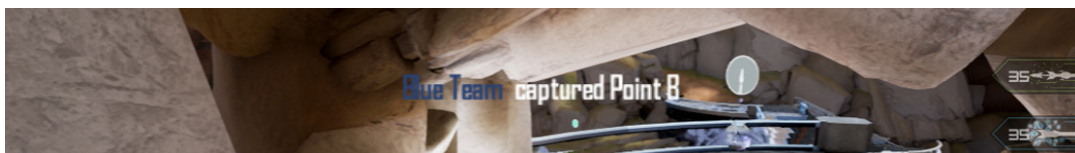

IMAGE 39 │ TEXT INDICATOR FOR WHEN A TEAM CAPTURED A POINT

For Zanshin we will feature 3 distinct levels, each one with it's own theme, and playable with all game modes. The arenas were built with the emphasis on fast combat and some choke points, encouraging players to keep moving through different floors, be it to grab Med Kits or Energy Kits.

SCALE

Zanshins scale will be represented by metric measurements. This scale was chosen because Unreal's system is based off these measurements and we found this to be the fastest approach. The following is a list of the player, modular piece, and asset scales.

NOTE
uu (Unreal Units) | 1uu = 1cm | 100uu = 100cm | 1000uu = 1m | Height x Length x Width

PLAYER | 170uu (1.7m) x 100uu (1m) x 100uu (1m)
WALLS | 400uu (4m)
FLOORS | 500uu (5m) x 1000uu (10m)
COVER TALL | 200uu (2m) x 300uu (3m) x 200uu (2m)
COVER SHORT | 100uu (1m) x 300 (3m) x 200uu (2m)

OBJECTS

Some of the objects in the game will be different styles of Cover Stands, Pillars, Statues, and Track Systems. See the "Objects Appendix" for a list of all the objects found in the world.

Cover Stands | Are broken up into different sizes some being short and some being tall to provide varying cover options. Some of these stands will also have track systems that let them rotate and move along set paths.

Pillars | Will be used as an art asset to fit within a building's foundation but will also provide cover to players some pillars will be destructible and crumble after taking heavy fire from high impact arrows.

Statues | Will be used as the in game traps and will keep players on edge when hiding behind or around them. There will be three types of traps in the game ranging from flame blasts, laser streams and arrow shots which can injure or kill players
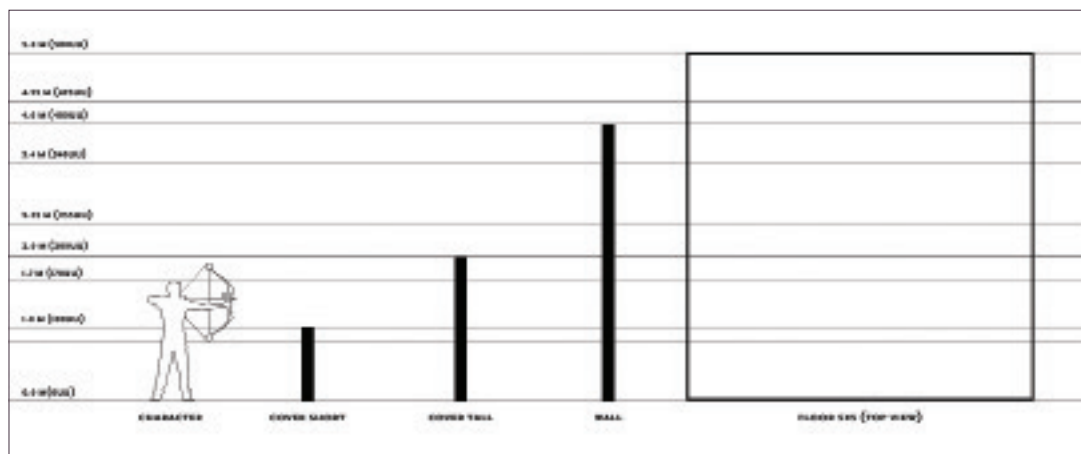
IMAGE 40 | CHARACTER SCALE COMPARED TO THE ENVIRONMENT ELEMENTS

IMAGE 41 | THE GOLDEN EYE CASTLE MOODBOARD

The Shiro Compound

The Shiro Compound has been emptied and repurposed for combat where the worst of the worst convicted criminals get to compete at a chance to free themselves. Within this environment around every corner a player will find victory or death. The Shiro Compound is an open area with plenty of space and corners to spot other players.

The Layout

The Shiro Compound is an open environment divided in Blue and Red Teams. Each part of the territory counts with Towers, a Tunnel to connect to the main environment and a cliff to connect between the two basses.

Image 42 | the shiro compound Top View

The Player has diferent options to translate in the environment. The player can double jump to the roof of the towers and wait for enemy players, or can teleport to a cliff to have a higher advantage in the field of view but with less cover.

The principal capture points are located in the extremes of the map and in the middle of the field. Each team has a capture point near of their position, this prevent a team of controlling all points at the same time as it give a chance to a team of recover.

The central capture point is the more vulnerable by the high spaces in the sorroundings. Inside the bunker the player can prevent damage and get a fast healing to compensate the high risk to be in low ground.

Image 43 | the shiro compound
Middle Control Point

Inside the the upper cliff we can find the others control points, these control points are desing to be more easy to capture by the corresponding side and is more easy for the team to recapture and flank the enemies that are inside.

LOOKING FOR CAPTURE POINTS
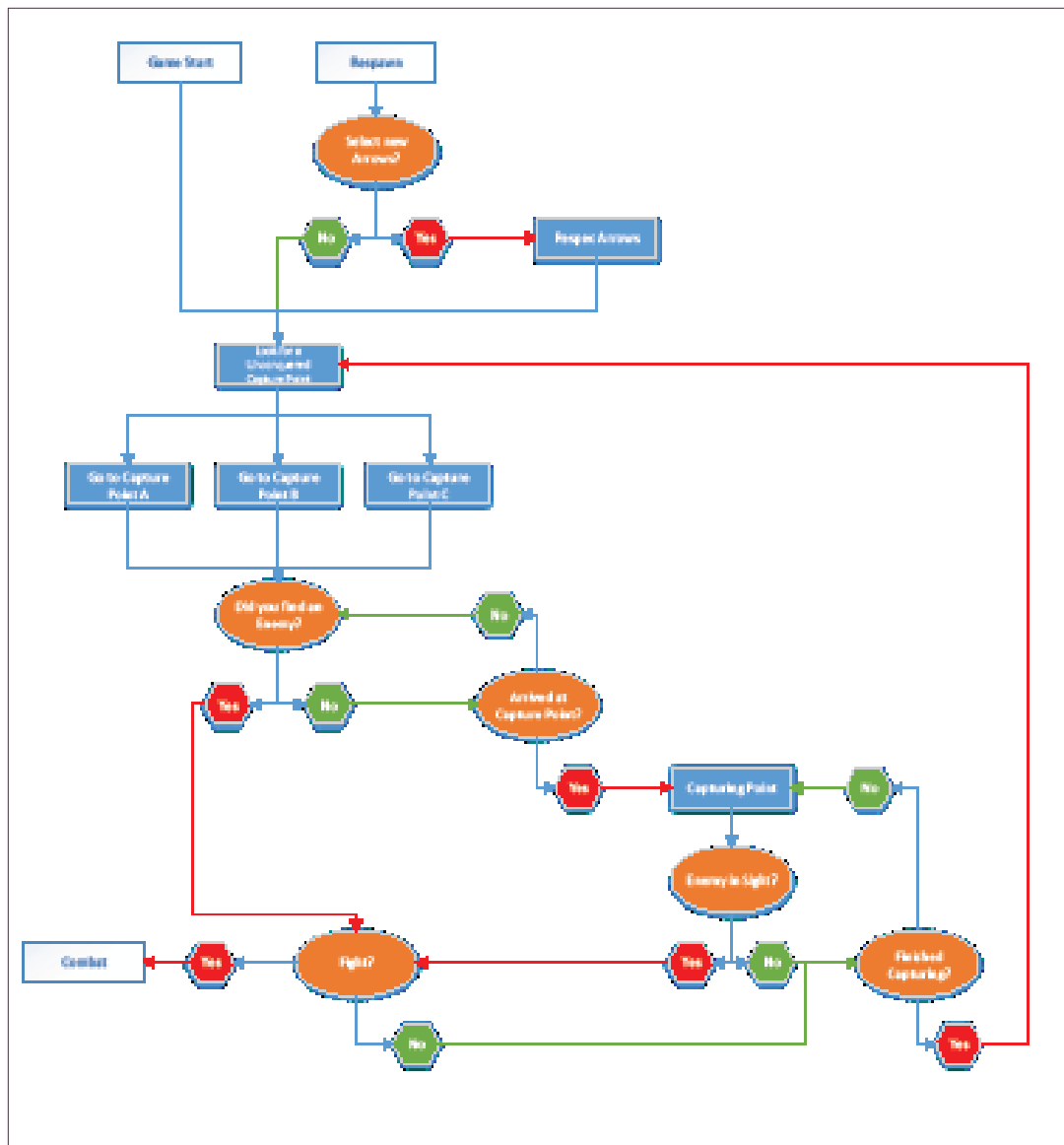
IMAGE 44 | LOOKING FOR CAPTURE POINTS GAME FLOW DIAGRAM
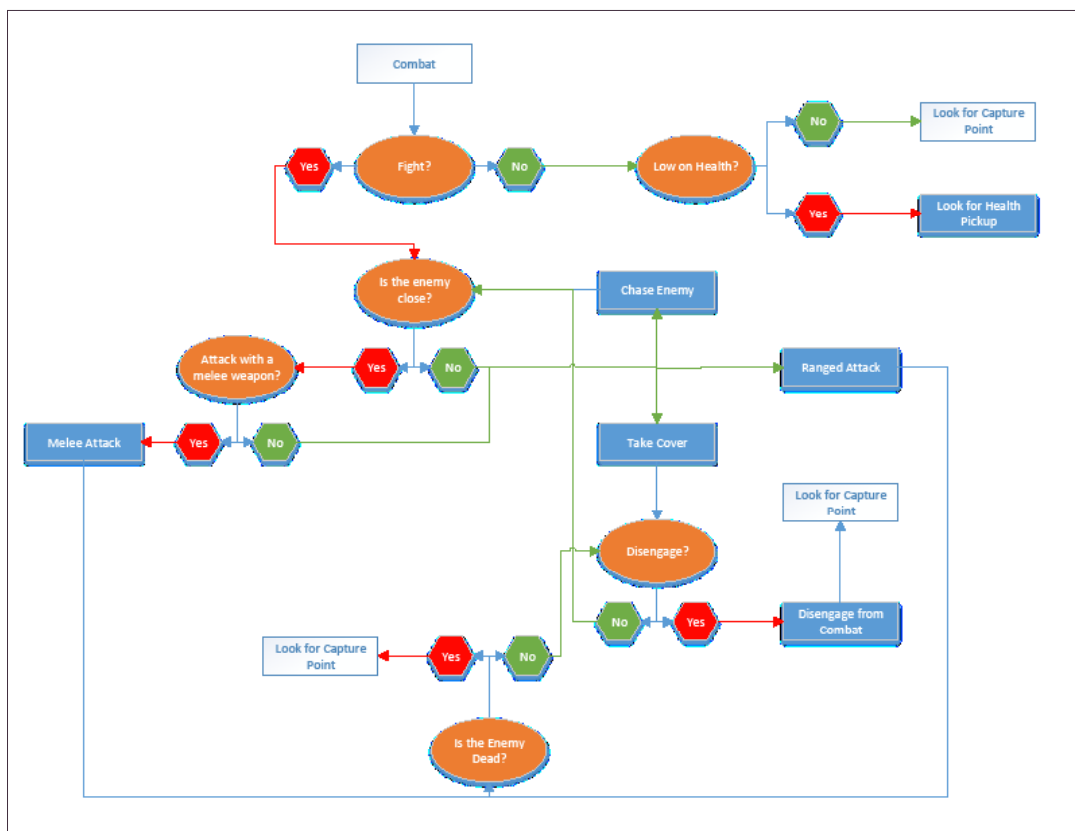
Image 45 | Combat Game Flow Diagram

OVERVIEW

The networking implementation is based on Unreal's Authoritative Server Model. A real simulation is done exclusively on the server and then relevant information is replicated to the clients. Each client or instance of the game has a channel open to the server through which information flows.

Data conversion and compression is done automatically by the Engine, for example, floats are rounded to the nearest integer and sent over the network as such. Session finding and matchmaking is a pretty straightforward implementation since we are working exclusively on LAN.

A dedicated server is going to be configured so that a 7th machine can host the game for the other 6 players. There is no rendering done on the server.

Max Players

The optimized number of players for Zanshin is 3 on each side, for a total of 6 simultaneous players. But matches can also be played with 6 on each side.

Servers

The game follows an authoritative server model. Where the only real simulation is held on the server and then variables are broadcasted over the network.

Internet

The game is currently scoped to work over LAN. An online matchmaking tool would be out of scope.

Zanshin uses a first person camera to show off our many different arrow combinations in unison with a smooth firing bow while also setting the player in front row seats as an arrow flies past their head. This camera will provide a more connected feel to the player with the game character as well as keeping them on an eye to eye level with their opponents. Players will also receive feedback on their bow shots, by showing how long they tensions the strings.

IMAGE 46 │ CAMERA VIEW EXAMPLE, THE PLAYER ARMS AND THE CROSSHAIR

Camera Detail

The camera is attached to the player, and controlled by a Spring Arm component that makes the transition between croch, jumping and sliding states feels more smooth and interesting. The position of the camera simulates the human eye height, where in this case the player will only be able to see his characters arm and weapon. When the player crouches, the camera follows the change of height which can cause the player to lose sight of some parts of the scenario. but make him harder to hit since most of his body is protected.

The camera is positioned as if it was the character eyes, inside the Unreal Engine it's at 130 cm from the ground.
The FOV of the game is 106, making it possible for some peripheral view.

Player Visibility (standing / crouching)
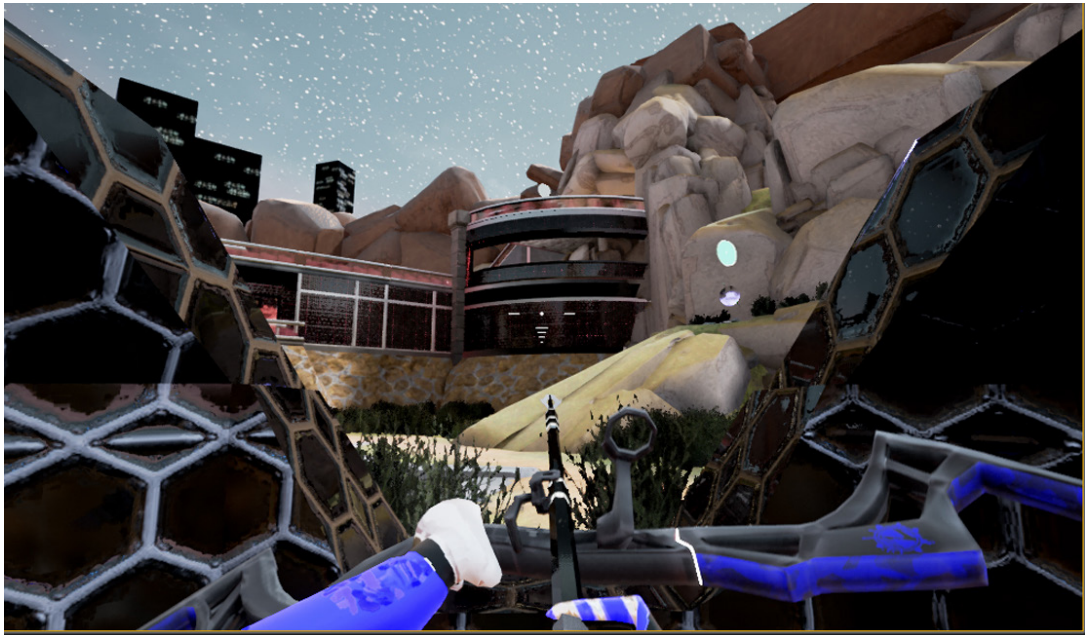
Image 47 │ camera view with obstacles and in different stances

THE GAME WORLD

OVERVIEW

Zanshin is a set within a futuristic cyberpunk city where the rich get off by having convicts battle each other for amusement. Although a highly technologically advanced city the convicts are equipped with compound bows to battle each other. Unfortunately for the convicts, this rich society has given all contestants a large arsenal of arrow attachments to decimate each other with. The Zanshin matches can be played in different categories, and usually the winners of those categories receive the praise of the audience and the final reward, release!

BEAUTIFUL ENVIRONMENTS

Being a blood sport for the wealthy, exotic is the word when choosing the battlefield. These convicts are not fighting in destroyed places, but in architecturally beautiful places, like hotels, plazas and resorts, a strange contrast between the classy and the gore skirmishes that will happen. The duality between the bloody battles and beautiful architecture is what makes Zanshin a popular sport for the masses, the opportunity to watch carnage in nice environments.

REALISTIC GRAPHICS

To make players feel more connected to the game, Zanshin will be fully developed in Unreal and its powerful graphic engine. With it's diverse environments and futuristic settings, the priority is to create high resolution materials and textures, that will enable a richer experience to players.

OVERVIEW

Zanshin was planned to be a Blood Sport, pitting the worst kind of humans against each other for a shot at a precious prize, liberty. Sponsors in Zanshin, seek only the most brutal, vile and deadlies convicts, inside the filled prions of modern age, those that are marked for execution, and have nothing to lose. The sport began inside the Empire of Japan, a strategy from the government similar to the old Roman games, the "Bread and Circus". It was only natural that the first participants were originated from Japanese prisons, usually people that opposed the Emperor or murderers.

IMAGE 48 | CHARACTER MOODBOARD

Image 49 | model of the character

Image 50 │ blue team coloured model

Image 51 │ red team coloured model
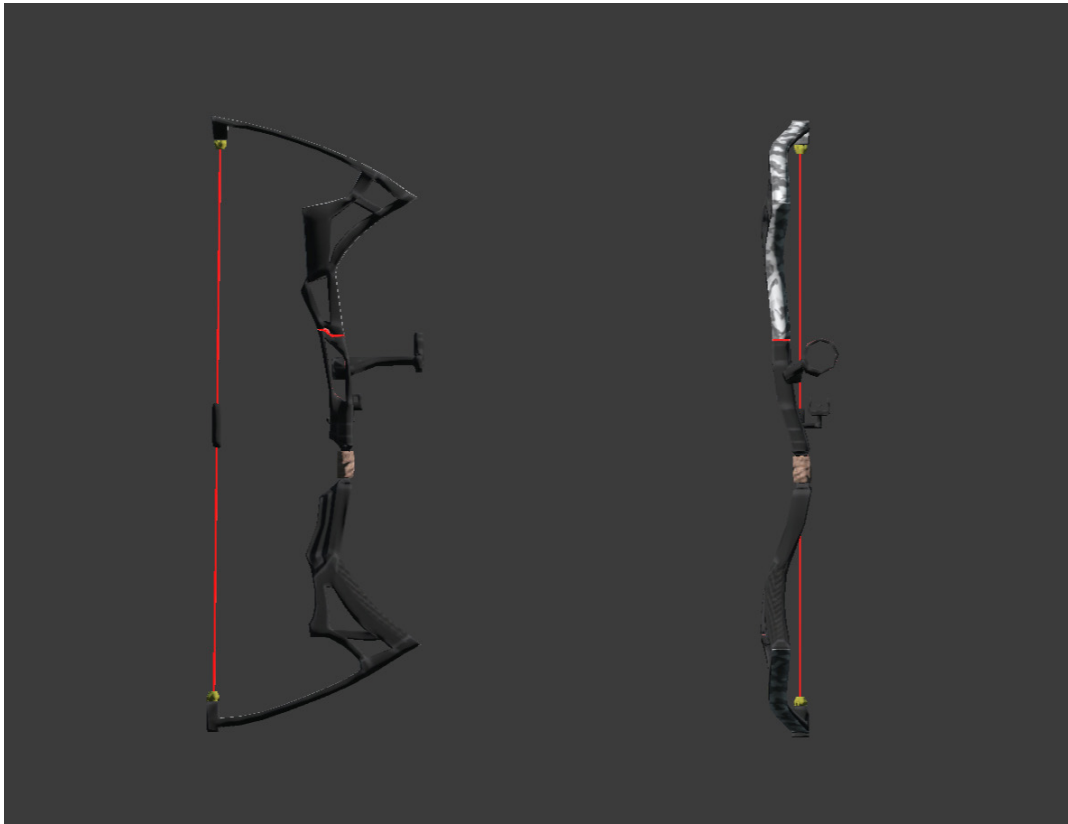
IMAGE 52 | IN GAME MODEL OF THE BOW

The bow was once a deadly weapon before the discovery of powder, on the right hands it could pierce through the hardests metals at the time. When the prototype of Zanshin was announced, engineers from all over the world started working together to develop a high tech version of the bow, combining different functionalities to it. The Prosecutor was built to be the ultimate weapon, built from different types of metals, these bow is virtually indestructible, making it the perfect asset in a blood sport. Instead of using regular textile strings, the bow uses the FLS (Flexible Laser String), a special type of laser that bends to the user manouvers, being much more reliable then a string. It can also be used to cut through enemies, with the same power as a potent laser.

SCREEN FLOW DIAGRAMS

Refer to the section SCREEN FLOW on the Appendix

OVERVIEW

The Menus in Zanshin are composed of the Splash Screens, the Start Screen, Host Game, Lobby, Game Session, Character Respawn Screen, Match Results Screens, Options Menu and Credits.

Splash Screen

The first screens players will see when opening the game, it consists of the following screens in order of appearance:

- VFS Logo & Legal Disclaimer
- Powered by Unreal 4 notice
- Zanshin Intro

Start Screen

After the splash screen, the start screen is where players will have the option to navigate to the different menus. It consists of:

- Zanshin logo
- Host Game
- Join Game
- Options
- Credits
- Exit

Image 53 | main menu screen mockup

Host Game

In the Host Game screen, the host after selecting the desired settings will press the Create Game button, creating a game session in the lobby for players to join.
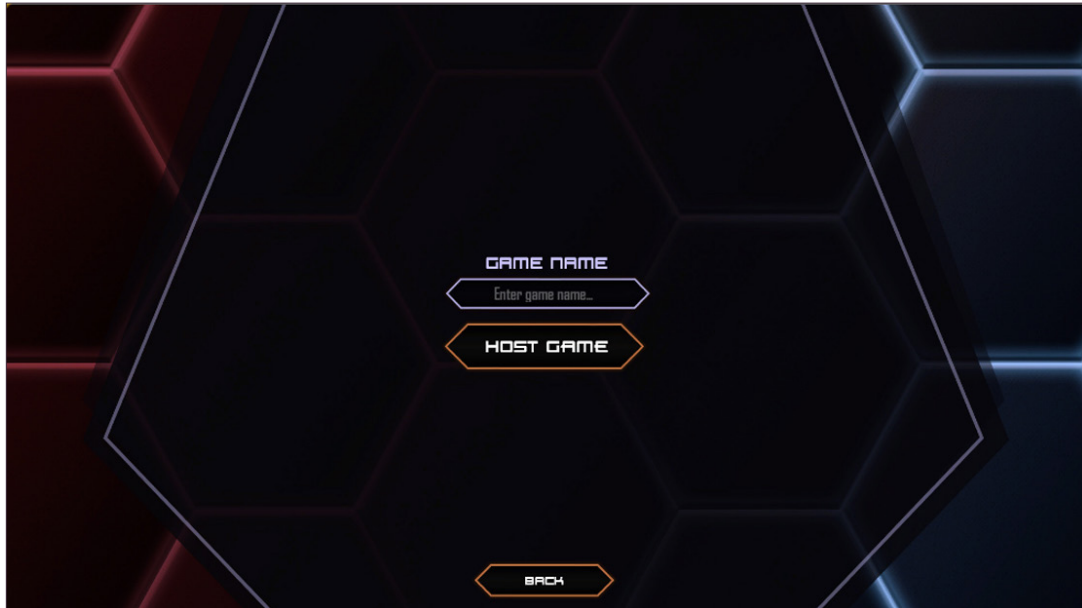
IMAGE 54 | HOST GAME SCREEN

Join game -> Lobby

By clicking Join Game, the players will be guided to the Lobby where all the avaiable games will be displayed, showing the maximum and current number of players and the level
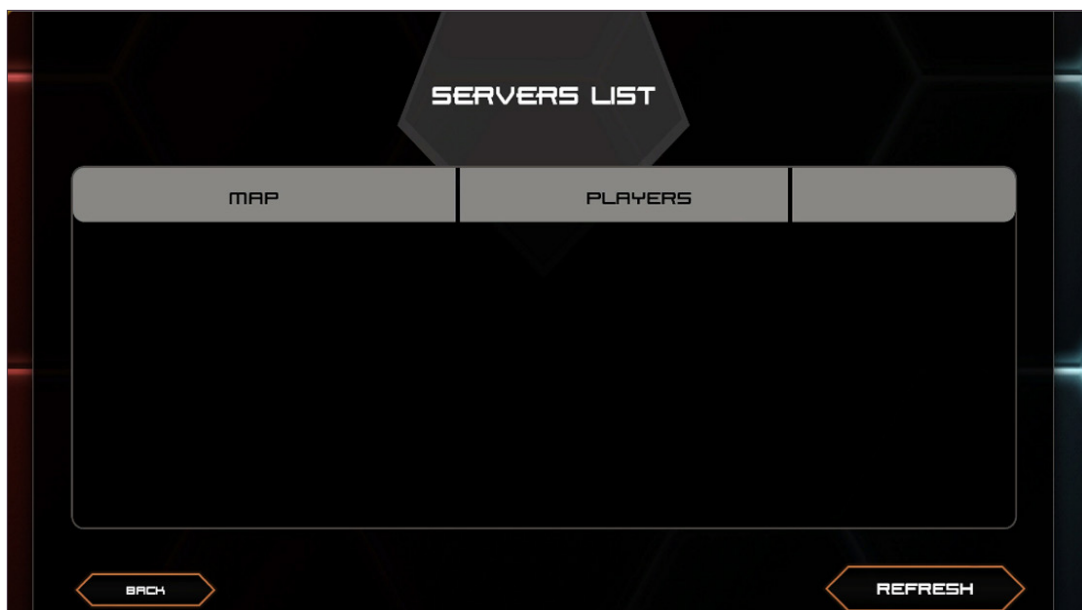
IMAGE 55 | SERVER LIST SCREEN

Lobby -> Game Session

Players inside the lobby will have to select one of the session to enter a created games. Inside there they will be able to select their team and even discuss strategies and etc.

Image 56 | **lobby screen**

Match Results Screen

When the game session is done, the Match Results Screen will show all the match stats, like the winner team or player depending on the game mode. Players will also be able to see their score, and other informations like number deaths, shot accuracy, assists, etc.
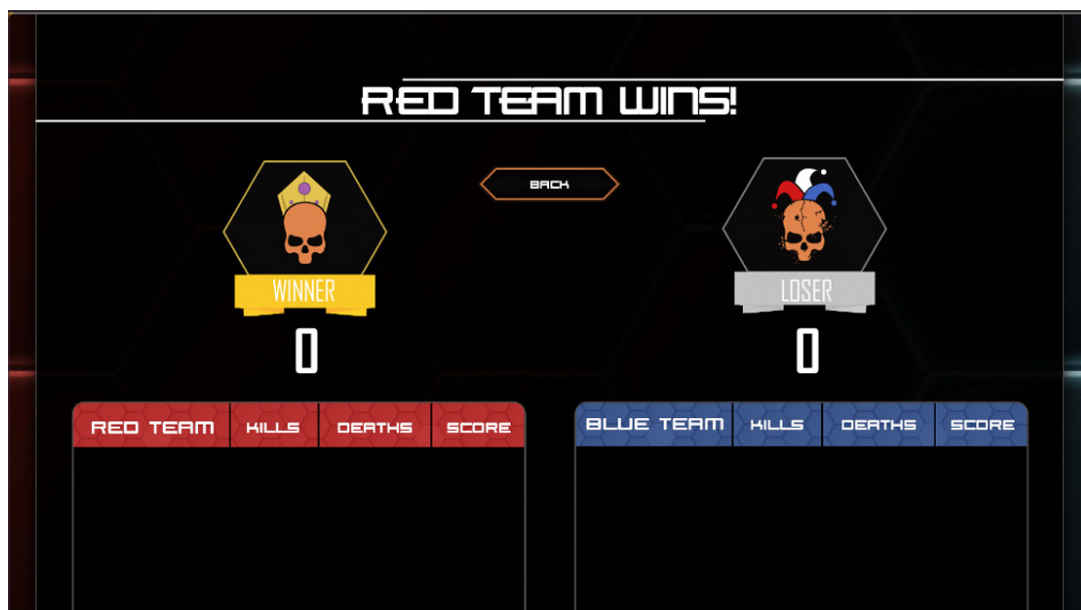
Image 57 | **end of match screen**

In game HUD

The HUD is responsible for storing all the useful information and feebacks from players, ranging from ammounf of ammo to their health.

1 - MATCH TIMER (FROM 05:00 TO 00:00)
2 - RED TEAM SCORE
3 - BLUE TEAM SCORE
4 - CAPTURE POINTS A, B AND C
5 - JETPACK FILL
6 - HEALTH
7 - CROSSHAIR
8 - TRACKER ARROW AMMO
9 - SLOW ARROW AMMO
10 - TELEPORT ARROW AMMO
11 - EXPLOSIVE ARROW AMMO
12 - STANDARD ARROW AMMO
13 - CURRENT ARROW SELECTED

MUSICAL SCORES AND SOUND EFFECTS

OVERVIEW

The setting where Zanshin takes place, is filled with greedy corporations, which make for some interesting choices in the art and sound design areas. To reflect the feeling of desperate fights and televisioned entertainment, the sounds in Zanshin are meant to be visceral and real, combining with the realistic graphics it aimed at. The Arenas are set in gorgeous environemnts so its important that the ambiance sound and the soundtrack mix together, the frenetic pace of a FPS and the relaxing sounds of beautiful hotels and castles. To make the game play more immersive, an Announcer is present, narrating the different things happening in the arena, like headshots, kill streaks and Sponsor messages.

SOUND DESIGN

To set players inside the game tone, our Audio collaborator will create SFX and tracks that keep players entertained and always focused on the action. Being a game about shooting arrows, it's important that we give players the feeling of hitting and being hit by pointy tips, creating moments of adrenaline. Each level will also feature it's own ambience sound, for instance the hotel will feature some open areas where wind and city noises will be hearable across these areas.

Zanshin will also feature it's own soundtracks for each level, keeping them distinct from eachother. Matches usually take around 5 minutes, so to give players the sense of urgency the track will follow a curve of excitement and energy. The levels will also contain a fully voiced Narrator, which will be constantly talking about the match as a normal sport would do. Events like headshots and killing spree will be displayed both in the UI and by the announcer, adding up to the experience. The narrator will also comment about the Sponsor and their valuable contribution to the sport, but having in mind that these announcement will be sporadic and unobstrusive.

For the different particles and effects happening in the game a full range of sound effects will contribute to player feedback. SFX for fire, electricity and acid are some of the examples, they will can be heared by players that select those tips, or by being hit by those same tips.

OVERVIEW

This section is reserved for features we would like to implement/change depending on the progress of the project. These are also elements that would make for a extended experience of the game, so should also be considered for adding in the future.

CUSTOMIZABLE BOWS

Addying some degree of customization to the bow will be a nice feature, since it will allow for even more deep layer of complexity and play styles. With the current scope of our project this would demand more time then we have, in the art, programming and design areas, that's why we considered this not as a top priority. The idea is that players would be able to change different elements of the bow like the strings, the arms, adding different scopes, laser sights, and visual modifications where players could customize it to their taste.

CUSTOMIZABLE CHARACTERS

Another features we would like to implement is the ability to customize your own character with different body parts and colors, thus making each character different from the other. As stated above this would demand even more art assets, but it's something we are considering if we have the time to implement it.

CUSTOM RULES

For the game play itself we are considering the creation of custom rules that could modify the experience of each match, much like Goldeneye and Towerfall did in their games. By enabling players to set the number of rounds, energy, life and avaiable arrows, games would feel different and even custom game modes could be tailored from scratch with this amount of freedom. Our concern is the amount of time we would have to spend to build this feature, since we first want to create a solid basic gameplay experience before adding new things.

MORE LEVELS

For Zanshin we are aiming at creating initially 3 levels, but we hope in the feature to implement more levels with different settings. These levels could range from diverse environments like tropical forests, tundras, deserts and many other, keeping in mind the Cyberpunk thematic.

COMPETITIVE ANALYSIS

Zanshin will dwell in the FPS market. Several of our competitors have huge audiences, with cult-like following and tournaments held worldwide. We will describe the best features of these competitors, our take on how they manage to achieve those excellent results. Afterwards, we will state how Zanshin expects to provide the players with a similar experience.

Game	Competitor feature	Zanshin feature	Analysis
Counter Strike: CS-GO	The epitome of FPS's. This game is among the best games of all time, with a set of features that attract millions of players from all over the world. Some of them are: Tight Controls, In-game menu where the player can choose and change his weapon to fit his style or the strategical requirements of the match. Clear and concise objectives that keep the players engaged and in constant combat.	Our goal in terms of control is to maintain a balance between the classical FPS scheme and some added perks to make the shooting mechanic feel more natural and rewarding. We will limit the amount of ammo on spawn/respawn to keep players on the move and looking for arrows, guaranteeing constant combat. On respawn, the players will be able to choose a combination of shafts-tips.	What we learned from CS-GO: A good FPS keeps players in constant combat with clear and natural objectives. Controls are the most important element. Target must be in the center of the screen.
Far Cry: Blood Dragon	An awesome combination of futuristic elements and bows/arrows, The way they make the setting come together is incredibly well-done. They have made very rewarding bow-arrow physics. Shooting arrows at targets feels really good.	We will attempt to implement a similar graphic style. When it comes to arrow physics the most important thing is that the movements/actions feel rewarding.	What we learned from Far Cry: Blood Dragon: The key to put arrows in a futuristic environment is to justify them via gameplay. The arrows are stealthier and favor silent, one-shot kills.
Team Fortress	Excellent multiplayer game. The gameplay is very balanced and it contains fast-paced combat. The different game modes feel entertaining and are very difficult to play.	We want our game modes to feel natural and interesting. Players need to feel like every game mode requires a different strategic thinking but rewards accuracy and risk-taking.	What we learned from TF, a great game where teamwork is valued over singular skill. Changing game modes must be fun and entertaining.

Table 15 | competitive analysis

Zanshin is for anyone who enjoys first person arena shooter games with fast paced killing and ever changing objectives within a futuristic cyberpunk deathtrap. Following the huge success of FPS's, Zanshin players will use a more unconventional weapon the bow. The bow is a "primitive" weapon, but as deadly as any other.

The games futuristic art style will appeal to anyone that loves a cyberpunk look mixed with a blood sport theme, people that liked movies like Total Recall, Blade Runner and Hunger Games will find a lot of inspiration from these pieces within the game. Entering into a competitive genre we are balancing the game to appease for newcomers and hard-core veterans. Every player will start with a default bow to level out the playing field, the game is easy to play but hard to master. The game will be released focusing on online multiplayer with room for future expansions and extra content, aiming for a price release of $20.

Our target market can be further broken down as follows.

Geographics

Being a FPS with no story mode, people from all over the world won't find it hard to getting it straight into the game. All the information inside the game itself can be visualized through numbers and icons, with only the menus demanding a minimum knowledge of the English language.

Demographics

Our main target are the FPS fans of either sex, ranging from 18 to 40.

Target Rating

The game revolves around shooting other players, with the occasional blood spill and arrow pierced bodies, so we are aiming for a Mature rating in the ESRB.

PROGRAM
START

PROGRAM
EXIT

- Splash Screen
- Unreal 4
-Team 66Forg
-Game Title

Exit

START
MENU

CREDITS
SCREEN

OPTIONS
SCREEN

HOST SCREEN

Join
Game

Leave Game

LOBBY
SCREEN

RESULTS
SCREEN

Match End

GAME

Player Killed

RESPAWN
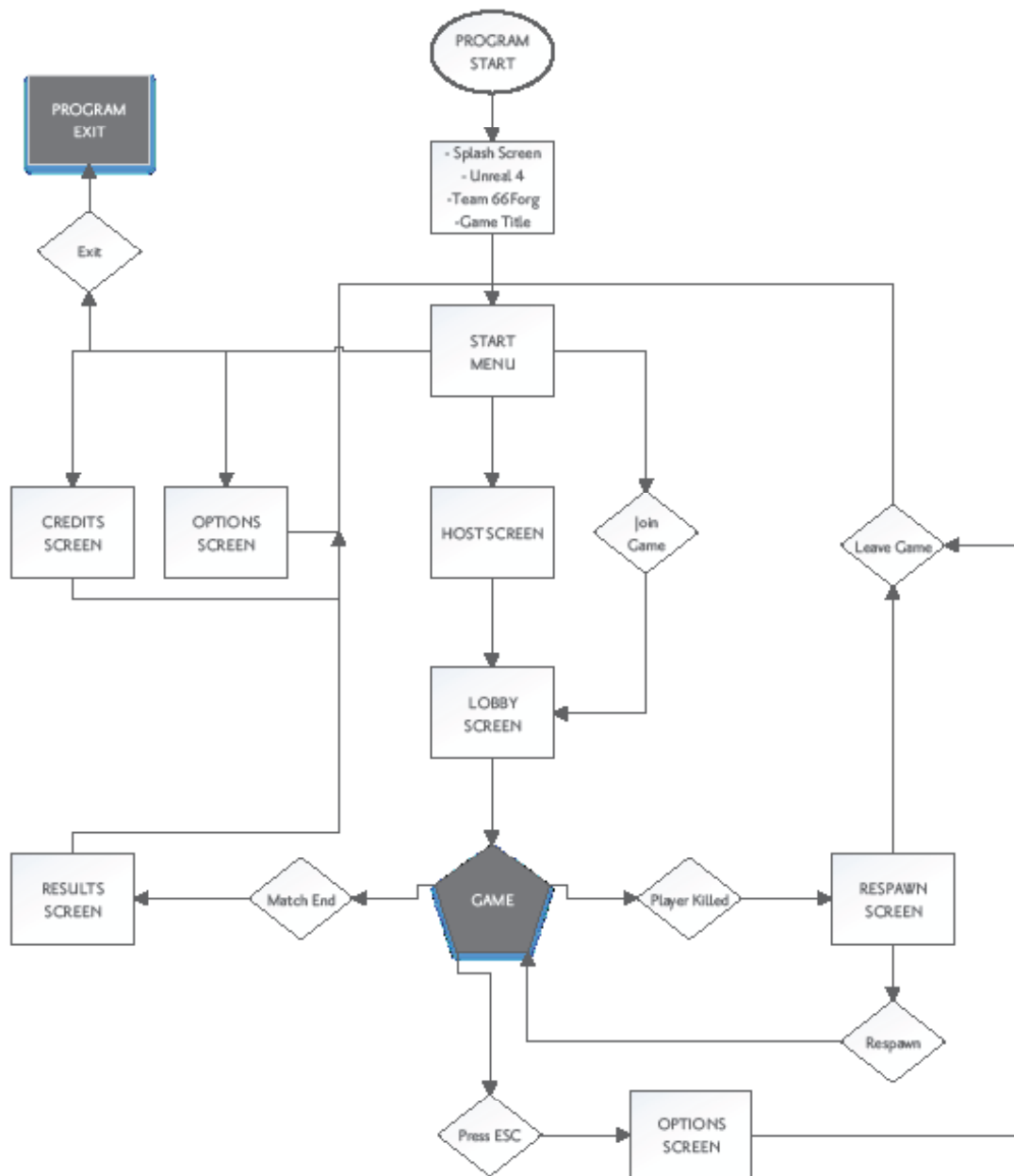SCREEN

Respawn

Press ESC

OPTIONS
SCREEN

Image 58 | screen flow

OBJECTS APPENDIX

Zanshin will dwell in the FPS market. Several of our competitors have huge audiences, with cult-like following and tournaments held worldwide. We will describe the best features of these competitors, our take on how they manage to achieve those excellent results. Afterwards, we will state how Zanshin expects to provide the players with a similar experience.
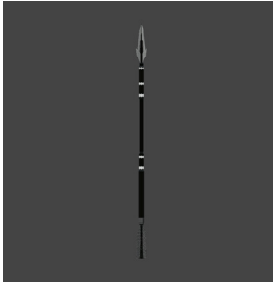
Type	Game	Height	Length	Width	
Players	Human/AI	180uu (1.8m)	100uu (1m)	100uu (1m)	
Modular Pieces floors	Floor (5x10)	30uu (0.3m)	500uu (5m)	1000uu (10m)	
	Floor (5x5)	30uu (0.3m)	500uu (5m)	500uu (10m)	
	Floor Curve	30uu (0.3m)	1000uu (10m)	1000uu (10m)	
walls	Wall Standard 1	400uu (4m)	500uu (5m)	30uu (0.3m)	
	Wall Standard 2	400uu (4m)	500uu (5m)	30uu (0.3m)	

Table 16 | objects list

Type	Game	Height	Length	Width	
	Wall Standard 3	400uu (4m)	500uu (5m)	30uu (0.3m)	
	Wall Standard 4	400uu (4m)	500uu (5m)	30uu (0.3m)	
	Wall Half	200uu (2m)	500uu (5m)	30uu (0.3m)	
	Wall Half Tall	230uu (1m)	500uu (5m)	30uu (0.3m)	
	Wall Door	200uu (1m)	200uu (5m)	30uu (0.3m)	
	SM_FloorCurve1	-	-	-	
	SM_FloorCurve2	-	-	-	
	SM_FloorCurve4	-	-	-	
	SM_Floor-SpawnBtm	-	-	-	

Type	Game	Height	Length	Width	
	SM_FloorSpawn-Top	-	-	-	
	SM_Building1	-	-	-	
	SM_Building2	-	-	-	
	SM_Building3	-	-	-	
	BP_Bunker	-	-	-	
	BPRampStd	-	-	-	
	SM_WallCurve	-	-	-	
	BP_WallCurve	-	-	-	

Type	Game	Height	Length	Width	
	SM_CastleBase	-	-	-	
	SM_CoverSmall	-	-	-	
	SM_CliffRock01	-	-	-	
	SM_CliffRock02	-	-	-	
	SM_RockPile	-	-	-	
	SM_ExitSign	-	-	-	
	Pickup Control Point	100uu (1m)	100uu (1m)	100uu (1m)	
	Pickup Health	100uu (1m)	100uu (1m)	100uu (1m)	
	Pickup Ammo	100uu (1m)	100uu (1m)	100uu (1m)	

Type	Game	Height	Length	Width	
	SM_StandardArrow	-	-	-	
	SM_ExplosiveArrow	-	-	-	
	SM_TeleportArrow	-	-	-	
	SM_SlowArrow	-	-	-	
	SM_TrackerArrow	-	-	-	

We are using Unreal Engine 4 version 4.9.2, it has a great networking and AI system that will help the project and make the time of development a lot shorter. The engine uses direct-x II to control its rendering parts and have deferred shading, global illumination, lit translucency, and post processing. For the AI they have a Behavior Tree component and a navigation system.

Rendering System

For the environment and parts of the level that are not going to move we are using Lightmass. We create lightmaps to precompute how the light bounce in the environment adding shadows and detail at a low performance cost. Some parts will have a reflection effect so we are going to use reflection spheres that will allow us to have a more accurate reflection off surfaces for a very low cost in the performance of the engine.

Each static Object in the environment is going to incorporate 1024 x 1024 (IK) resolution Lightmap in the UV channel I, reserving the channel 0 for base textures.

The light production quality is going to be set to "Production" for the Beta build. For Builds before we are going to use "Medium" quality light. The light is going to be built at the end of the day to present the build the next morning. Build lighting is a long process but has to be made when the artist wants to see a preview of the light within the environment.

Materials

 We are going to use the Physically Based Shading model which will create a better flow for the technical artist to change and create a more realistic look for all the textures. We are using Substance Painter to help the processes of creating different type of texture and make the job of the technical artist easier.

The Material system in Unreal is base in node connections. The artist can easily create the materials for the environment just providing the basic textures like Albedo, Normal Map, Ambient Occlusion and Roughness or Metallic Map.

Each Base material is going to be Instanceid and is going to be highly parameterized to avoid the construction of materials that just change the base textures ones from others similars materials.

Artificial Intelligence

For the bots we are using a behavior tree that is included in unreal. It will give us the power to create and change the behaviors of the bots with ease while also allowing us to create a more complex system to make the AI look engaging and smart. The navigation of the agents, UE has a built in system that allows us to move the bot freely in the environment and even make them jump. Other systems that we will be using is the Environment Query System to help send information from the environment to the bot so they can have a more clear vision of the location of possible hidden spots on the fly.

Physics

Unreal uses the PhysX 3.3 to calculate and process all the physics related object in the world. The only real use of physics will be to the arrows to make them fun for the player to shoot and to be shoot at.

Books

- **Battle Royale,** Koushun Takami
- **The Hunger Games,** Suzanne Collins
- **The Bladerunner,** Alan E. Nourse

Movies

- Bladerunner
- The Hunger Games
- Avengers
- The Lord of the Rings
- The Running Man
- Ghost in the Shell
- Total Recall

Games

- Skyrim
- Far Cry 3
- Far Cry Blood Dragon
- Team Fortress 2
- Unreal Tournament
- Crysis 3
- Battlefield 4
- Dying Light
- Counter Strike
- Quake
- Towerfall
- Turok
- 007 Goldeneye

Archery Tag

- 6packbeach.com (Archery Tag session)

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