Design Document for:

TAURA GAMES

A fast-paced multiplayer small arena game

BECOME THE BALL, SCORE THE BALL, STOP THE BALL

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Version # 1.00

Monday, October 31, 2022

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DESIGN HISTORY

This document will attempt to keep track of the various design decisions that have been created already and some that will be created. It will also document where some important functions and mechanics are located.

VERSION 1.0

GAME OVERVIEW

GENERAL GAME INFORMATION

WHAT IS THE GAME?

A fast-paced 2v2 to 3v3 multiplayer game where the goal is to race the opposing team to get possession of the ball and score as many goals as possible. The player with the ball becomes the ball (known as ball-player in this document) and their ability set changes. Their movement is faster and the camera shifts to third-person. The ball-player's teammates will then support, defend and enable the ball-player to get themselves into the goal to score a point. The opposing team will attempt to stop the ball-player and cause enough damage to the ball-player so that ball possession is removed and reset to a ball pick-up item at the center of the arena.

WHY CREATE THIS GAME?

I love fun movement, fast-paced games, and first-person shooters but those usually lead to "sweaty", spawn-die, spawn-die cycles. This game keeps the first-person shooter aspects but doesn't directly reward shooting or "killing" a player. It rewards scoring the ball which requires teamwork.

WHERE DOES THE GAME TAKE PLACE?

On various islands currently in space that will all be visually exciting in different unique ways.

WHAT DOES THE PLAYER CONTROL?

The player is a first-person shooter character with a couple of select abilities. When they gain possession of the ball they become the ball in third-person view.

WHAT'S DIFFERENT?

Outside of Rocket-League there aren't many small arena games. This combination of a shooter and ball game should also be new for players but familiar enough that they find it easy to jump into.

PHILOSOPHY

PHILOSOPHICAL POINT #1

The focal points of this game are that it be fun, fast-paced and to maintain a constant flow for the player. The first two are self-explanatory. The goal of the third is to keep the player in motion during gameplay as much as possible. For example, design should avoid things like stun and slow-down effects that may impede motion too significantly. Also, respawns should be fast and more like a position reset. This is not a rule but a general guideline to create an overall experience that is different then other shooters (even though this isn't primarily a shooter).

PHILOSOPHICAL POINT #2

Our game shouldn't be overly complicated for the first-time player and it shouldn't be hard to watch for the first time viewer. Ability effects should be easy to understand or at least find explanations of and strategies for gameplay will be kept strictly in the arena, as in, class or character choice will not be a strategic factor. Visually all weapon, blocking and movement abilities should be clear to the first-time viewer.

PHILOSOPHICAL POINT #3

The game should be as unique as possible in design while feeling familiar enough with its core gameplay that a new game player isn't intimated to jump in.
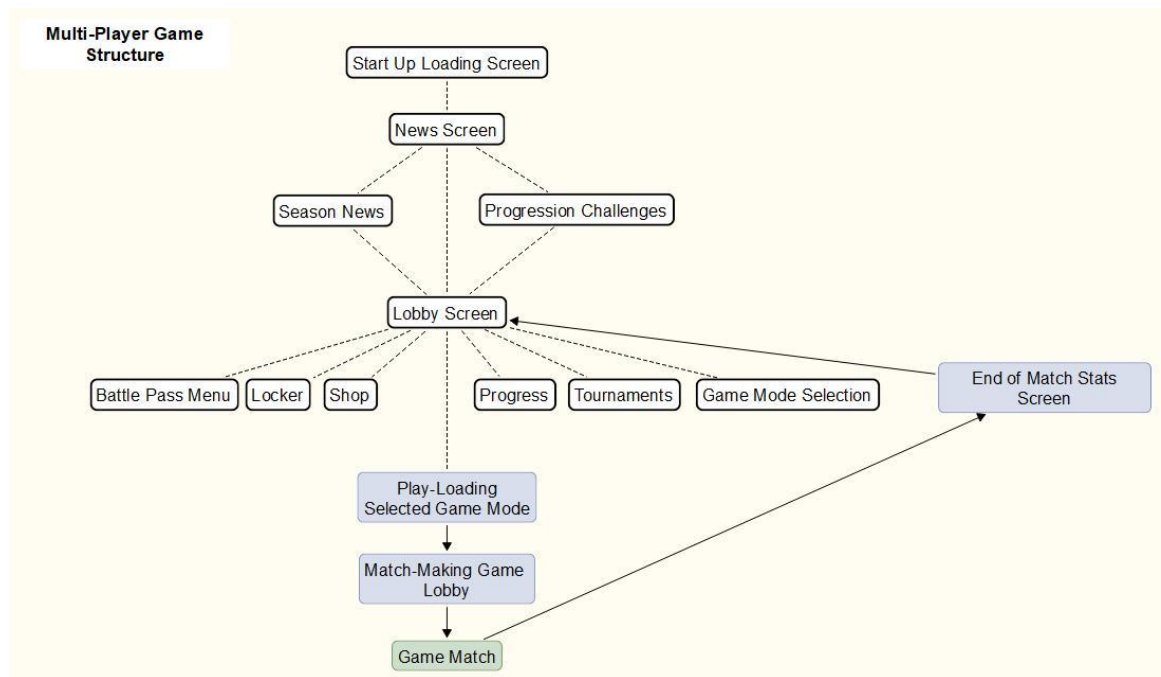
FEATURE SET

MULTIPLAYER FEATURES

- PVP
- Easy to find a game due to size

GAMEPLAY

- Fast movement for character-player
- Faster movement for ball-player
- Special abilities for character-player to support ball-player
- First-person shooter mechanics
- Arena launching pads
- Wall-running with shooting (in-progress)

GAME FLOW MAP

Multi-Player Game Structure

THE GAMEPLAY ARENA

OVERVIEW

Each Arena is in a different portion of space on top of a floating island.
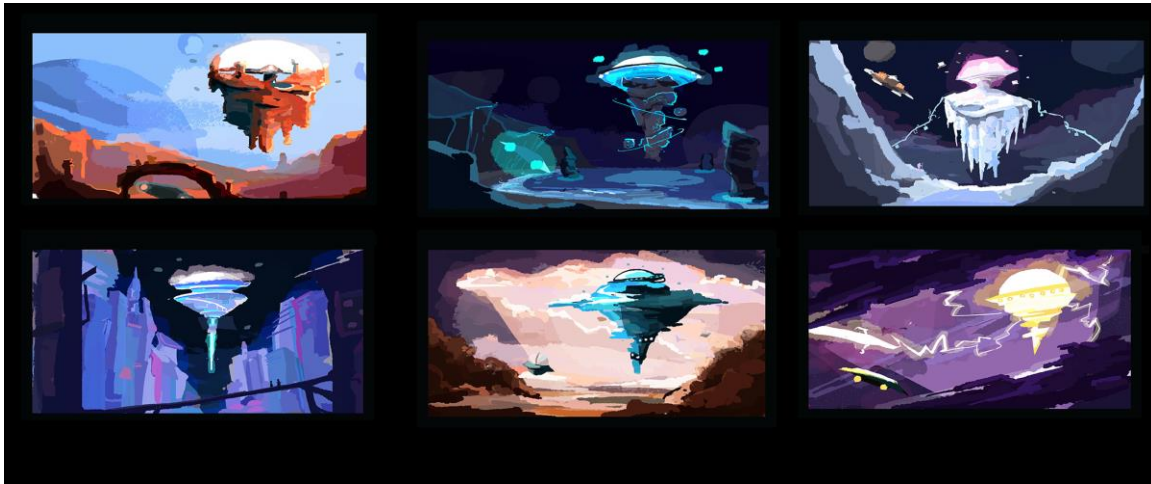
Concept Art by Annie Cauffman

ARENA

OVERVIEW

Generally, the arenas will have a Tron-like look but utilizing bright colors. The side walls and the ceiling will be translucent with minimal lines or design to let the player know clearly where they are located.

2V2 ARENA SCALE

	X	Y	Z
Arena Island Size	150m	150m	160m
Gameplay Arena	120m	120m	20m

OBJECTS

SHIFTING COVER

CLASS- BP_COVERSYSTEMMASTER

This contains all the cover for the entire arena and controls the movement of all the cover meshes from position to position.
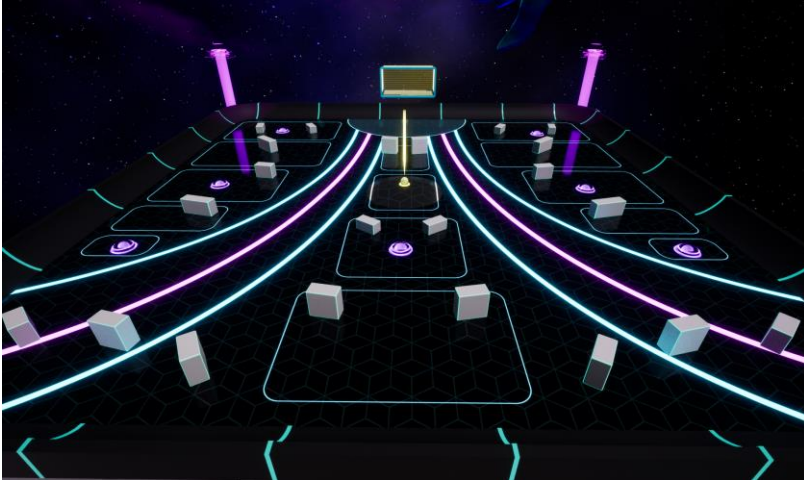
It has these options exposed to the designer

- Starting Position Sets (3)
- 12 Mesh inputs
- 12 Material inputs
- Transform inputs for each Mesh for each position set on one side of the map. Those transforms are mirrored to the other side
- Meshes shift from Position to position based on a timer controlling a LERP

PLAYER LAUNCHERS

CLASS- BP_LAUNCHERBASE

Checks for Ball-player or Character-Player and then applies the engine's Launch Character function with the option of different values for whether it is a Character or Ball.

- Forward Vector X, Y values are multiplied by a value and that is used for the X, Y Launch Velocity
- Launch Velocity Z is an independent float value

ARENA DOME

2- Sided Transparent Material with moving lines so that player can see it. Ball-player camera can move through it.

EDGE RAMPS

Comes in three pieces:

- Straight Ramp
- Corner Ramp
- Border Piece

Currently the Ball camera can pass through these but they block the camera visually. There are no plans to change this but there is room for a see-through outline effect here.

GOAL

BP_GOAL SCORING

When the Ball-player scores it gets their team and communicates that that team scored to the Server Game State which updates the score. A message is then sent to all the Player Controllers through the INT_PLAYERCONTROLLER Interface. It tells them all that Team __ Scored with a large Title Card and then updates the UI Score Bar.

PLAYER AND PICK-UP RESPAWN

A message is also sent to the scoring Ball-player to start the functions to respawn them back into a normal character-player. It runs part of the functionality for a death respawn that is located on the BP_PLAYERBALL Character/Pawn Class. The BP_BallPickup is also spawned.

BALL-PLAYER SPAWN

CLASS- BP_BALLPICKUP

Upon overlap this message sends a message to the Game Mode that the ball has been picked up via the interface INT_GAMEMODE and it also communicates which character-player picked it up.

CLASS-MPT_PLAYERCONTROLLER

The Game Mode tells the Player Controller to run the SpawnBallRemovePlayer event and passes a class reference of the Ball character pawn, BP_PLAYERBALL for it to spawn and possess. The event destroys the character pawn and runs an event on the owner who is transitioning. This includes a flash effect and a HUD change with a call to update the new UI widgets score.

THE PRE-GAME (MATCH-MAKING) LOBBY

OVERVIEW

Players will travel here from the lobby screen. It will be the Gameplay Arena but the players will not spawn with their weapons and they will have a third-person view of their characters. They will be able to run around and use emotes.

NEEDS DEVELOPMENT

THIRD-PERSON VIEW

First-person view is optimal for gameplay but when the player is in this lobby third-person enables them to be expressive and see it happen. Here they can see their character skins and emotes in action.

EMOTES

Dances, spray textures, and other actions that give the player opportunity to flex or have some fun. The goal here would be to have a robust system like that of Fortnite and other successful franchises.

TAURA BALL GAME MODE

PLAYER COUNT

Currently 2v2 but there are plans for a different style of map or at least map size for 3v3.

WIN CONDITIONS

The team who scores the most as the ball wins.

NEEDS DEVELOPMENT

GAME STATS

Tracking of accuracy, headshots etc. for rewards systems and bragging rights.

GAME SYSTEMS

CAMERA

CHARACTER GAMEPLAY CAMERA

First-person camera where the players head is. Arms are attached.

FP_CAMERA

FOV- 90 degrees

BALL-PLAYER GAMEPLAY CAMERA

SPRING ARM

Third-person camera attached to a Spring Arm. Inherits Pitch, Yaw and Roll.

Target Arm Length- 1000

Camera Lag Speed- 10

BALL CAMERA

FOV- 90 degrees

Uses Pawn to control rotation

GAME ENGINE

Unreal Engine 5
Current Build: 5.0.3

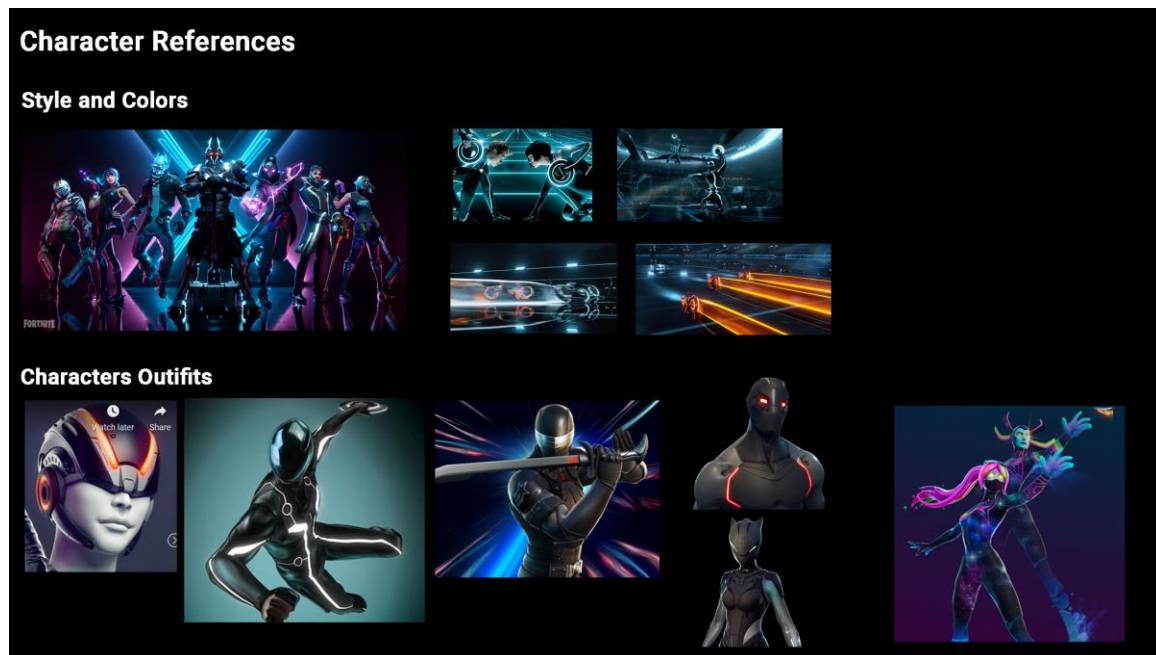## LIGHTING

NEEDS DEVELOPMENT

Currently Lumens is in use which allows the emissive parts of the materials to illuminate the scene but is not likely to be the choice for lighting due to performance.

GAME CHARACTERS

OVERVIEW

Currently there are no original characters created. The goal would be to keep the character pool diverse and open like in Fortnite. Initial characters will be masked to cut down on some production time.

To start with this is the style of look to draw inspiration from:

MOVEMENT

NEEDS DEVELOPMENT

SKATING

Since the character is moving very fast, they'll do a skating movement instead of running. Under their feet there will be some sort of emissive light effect.

WALL RUNNING

The player should be able to wall run and fire their weapons will doing so.

ENVIRONMENT CHARACTERS

The primary map for the current demo shows a creature in space called a Rolataur. The goal is to create more interesting creatures like this and have them animated and subtly moving through space.

UI, SOUND AND VISUAL FX

OVERVIEW

VISUAL, UI AND SOUND FX GOALS:

1. To have the player experience and feel important events in the game with varying impact.
2. Inform the players of important moments (half-life effect= the enemy is almost dead).
3. Support the feel of a fast-flowing game.
4. Visual simplicity- i.e. no health bars over players heads
5. Tasteful application that doesn't impede or frustrate players in unnecessary ways- i.e. jarring camera shakes or blinding muzzle flashes

MENU SYSTEM UI

NEEDS DEVELOPMENT

The menu system needs to be fully conceptualized and constructed. What currently exists is mostly a place holder to navigate. The general flow of the menus has been mapped out above in the Game Flow Map.

CHARACTER-PLAYER HUD

The aim is to have a simple, clean HUD like Valorants. No mini-map.

Currently Displayed:
- Score Bar
- Game Clock
- Players Team
- Health Bar

Needed:
- Primary Weapon Cooldown
- Abilities

BALL-PLAYER HUD

Currently Displayed:
- Score Bar
- Game Clock
- Players Team
- Health Bar
- Speed Boost Cooldown

This will likely remain this simple. There will be no abilities for the ball-player.

CURRENT IN-GAME EFFECTS

There are a handful of UI and visual effects to help the player experience what is occurring that are currently implemented.

- Hit player cross hair effect

- Being damaged effect
- Death FX
- Scoring the Ball FX
- Obtaining ball possession FX
- Speed boost UI Effect
- Half-life fresnel outline material when opponents life is halved (not UI)
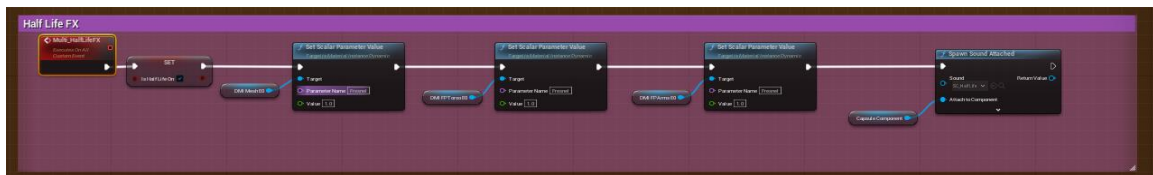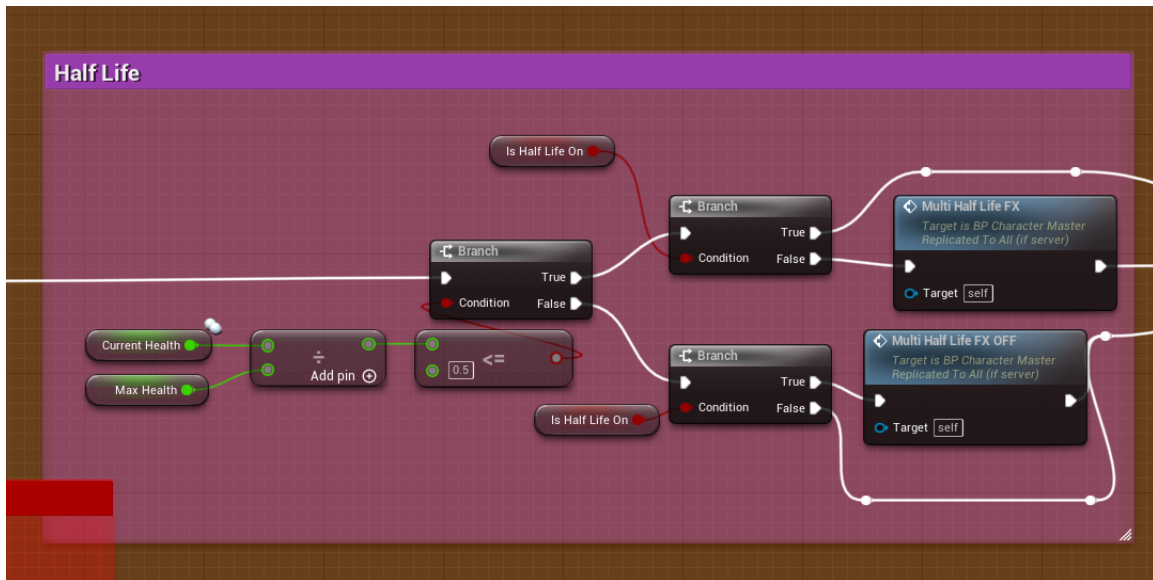
The actual material effect is derived from a material function that was purchased and then adjusted.

More FX will be developed as needed.

SOUND DESIGN

Informative sound design that isn't fatiguing. Currently, the laser sound effect for the primary weapon becomes a bit tiresome. What works is that it has a very clear player hit (hit marker) sound that is different from when no player is hit.
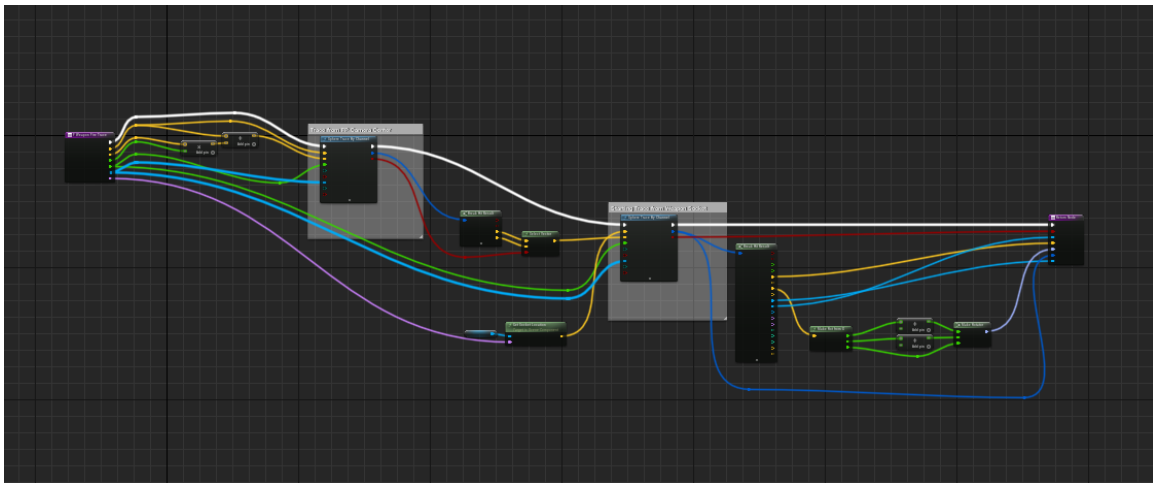
WEAPONS & ABILITIES

PRIMARY WEAPON

The main weapon and the only one in the current build of the game.

F_WEAPON FIRE TRACE

It runs off a sphere trace, so the hit is instant. The trace function considers the camera and the weapon socket to derive the hit data.

It fires a Niagara effect projectile which needs to change as it has a spotty/framey appearance.

ABILITIES WEAPON

NEEDS DEVELOPMENT

This system has not been built yet. Some effects that are being considered to counter the opposing team as well as assist a teammate as the ball-player are:

- Impulse or Push
- Wall or physical structure building that can be walked upon
- Shield
- More powerful firing ability

All to be earned with either gameplay performance or to be on a cooldown function.
Examples to draw inspiration from:
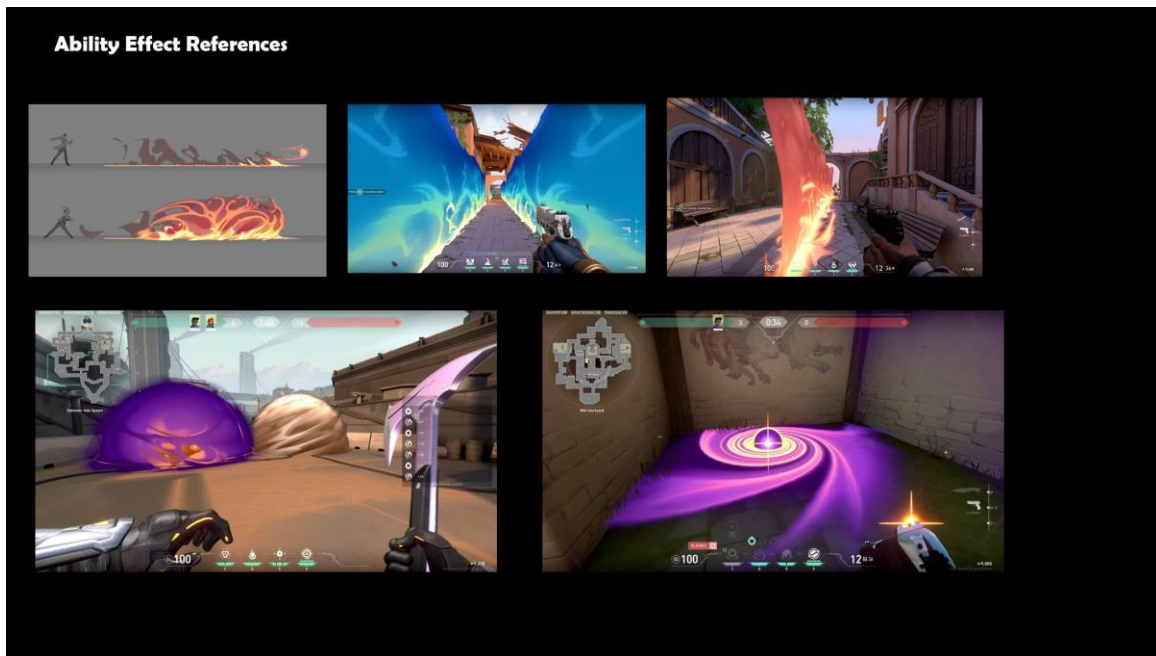
MUSICAL SCORE

MUSIC

Between electronic music like Zed to Hip Hop both with a unique edge like Daft Punk's Tron or the Black Panther soundtrack.

ONLINE SERVICES

Likely to lean on Epic's Online Services.