Game Design Document

CA1 SOFTWARE ENGINEERING/ 3D ANIMATION & GAME ENGINE PIPELINE

Shane Cunningham | 17/04/2023

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Overview

A BRIEF OVERVIEW OF YOUR GAME

2115 is a futuristic cyberpunk themed action / stealth game.

The game is set in Capital 1(formerly New York City) in the year 2115. The advancements in technology are omnipresent in society, and the majority of the population is modified with cybernetic implants. Crime is at an all-time high, Capital 1 is at breaking point. Many districts are ruled by street-gangs, and paramilitary factions who are waging a terrorist campaign on the state. Gangs of scavengers roam the streets seeking to harvest human implants to sell on the black market. Mysteriously left for dead, the main character suffers memory loss from injuries and has regular flashbacks of a former life and a checkered past. The main character has been assumed to be dead and taken from the street by members of a gang. The gang members have brought the main character to their base of operation (a former underground car park) to harvest him for valuable technological implants. The main character awakens in the gang headquarters and must escape.

The stylistic Inspirations for this game came from various media such as the *Deus Ex* series, *Blade Runner, Judge Dread, Robocop(1987), Akira, Ghost in the Shell,* and the inspiration for the gameplay elements of the game came from the *Deus Ex* series, The *Thief* series, the *Metal Gear* series, *Gears of War,* the *Red Faction* series and *Mirror's Edge*.

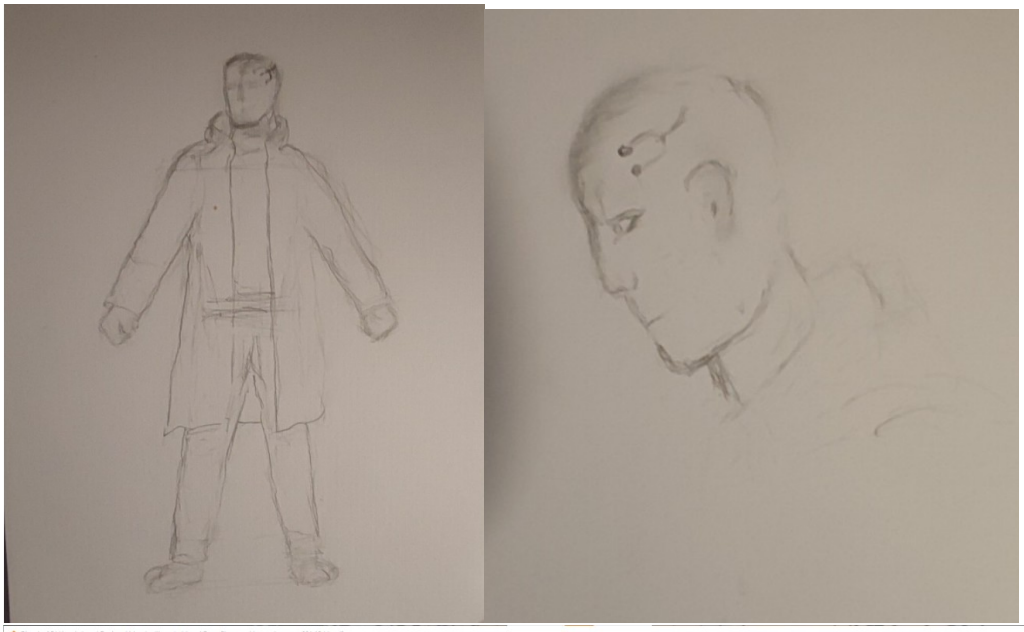
A LIST OF THE OBJECTIVES WITHIN YOUR GAME

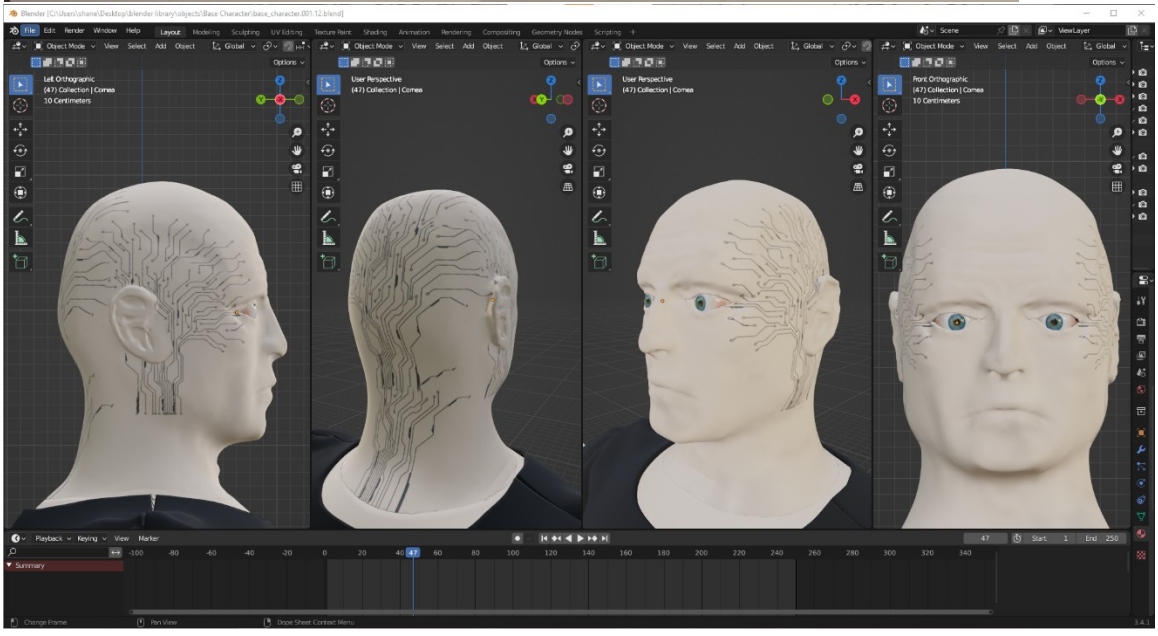
This project will feature the concept level for the first stage of the game. The objectives within the game are:

- The player will take control of the main character and navigate through the game's environment
- The player will complete goals by incorporating elements of either combat or stealth.
- The player will have variety of weapons and tactics.
- The player will have the ability to interact with elements of the environment (Breaking through walls, moving objects, interaction with water elements, cover and shoot).
- The player must find the exit point on the level.

A LIST OF THE CHARACTERS WITHIN YOUR GAME

Main Character





- Main Character:
    - Has the ability to run, walk, jump, interact with water, cover, shoot, punch, kick, climb, pick up weapons from dead enemies.
    - Can kill enemies.
    - Can be killed by enemies or the environment.
    - Uses a hit bar life system.
    - Has a limited number of power strikes to break through walls or to dispatch foes quickly.
    - The player can change views from first person to third person.

Enemy Character

- Augmented Street Gang Member:

- Has the ability to react to changes in the environment, sound.
- Can fire projectiles.
- Can use melee attacks.
- Can kill the main character.

YOUR GAME'S GENRE

Action / Stealth

Game Design

AN OVERVIEW TO YOUR GAME'S MECHANICS

What makes your game unique?

This game combines elements of action using the cover system, stealth, first-person platform, interaction with environmental elements and exploration.

What makes your game interesting to play?

This game allows the user to decide on the own course of action.

AN OVERVIEW TO THE DIFFICULTLY/LEVEL PROGRESSION WITHIN YOUR GAME

Does your game become more difficult as time goes on?

The player will have limited resources to aid them in completing the stage, such as health, ammunition. The player will need to use the resources wisely in order to survive the stage. The player will be able to stock up on resources by taking them from fallen enemies or finding them around the environment. Face to face conflicts with enemies can prove to be difficult when the player is under resourced.

Does the player switch to a new level when they complete an objective?

There is the potential to create more levels in the game.

AN OVERVIEW TO THE WIN/LOSE STATE(S) WITHIN YOUR GAME

Can the player win the game?

The player can clear the stage by finding the goal or exit.

What happens when the player wins the game?

The player gets to the next level.

Can the player lose the game?

Yes, if the player is killed, they lose their progression in the game.

What happens when the player loses the game?

When a player loses the game, they start at the beginning of the level.

AN OVERVIEW TO HOW THE USER WILL INTERACT WITH THE GAME

Will the game require keyboard/ mouse input?

Yes, the player will control the game using mouse and keyboard.

The controls will be:

Keyboard:

- A : Move player left
- S : Move player backwards
- D : Move player right
- W : Move player forwards
- Space Bar : Jump
- Z : Crouch (Not currently implemented)
- C : Switch Camera
- F : Holster Weapon/ Unholster Weapon (Not currently implemented)

Mouse:

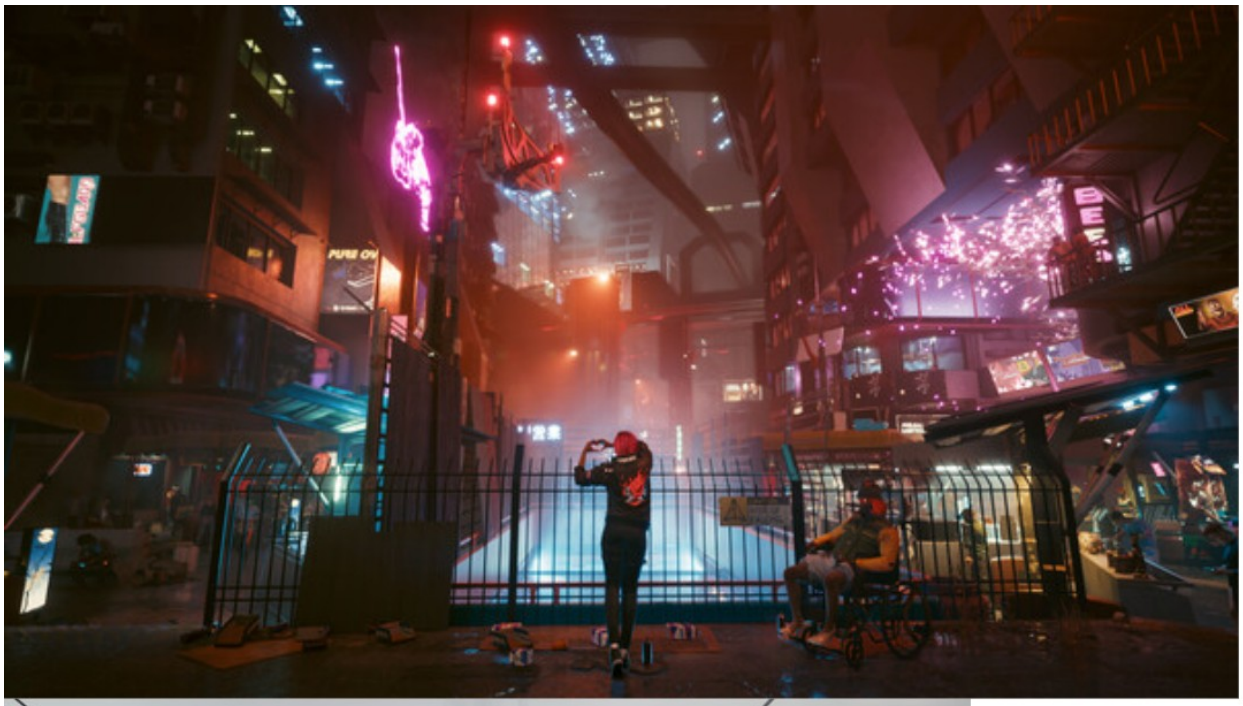
- MBL : Fire / Punch
- MBR : Aim Weapon / Kick

AN OVERVIEW TO THE VISUAL STYLE OF YOUR GAME

- How will the visual design of your game reflect its theme? For example, a detective game may be based on a black and white colour palette to reflect the visual style of old noir movies.

The cyberpunk theme of the game will reflect the visual design by incorporating use of blurred coulored lighting, shadows, fog, and tints of colour. The aesthetic of the level design will evoke images of derelict urban settings.

Mood board Images



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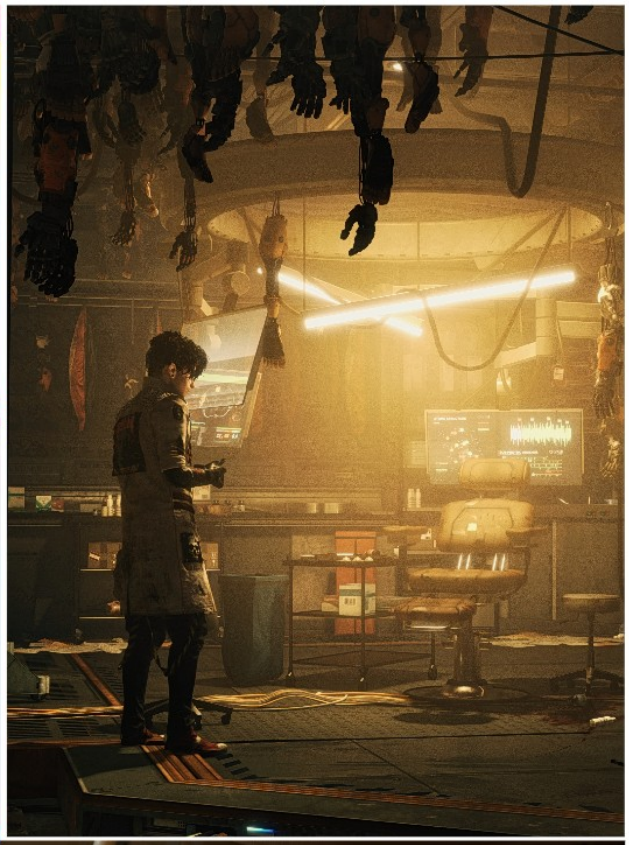
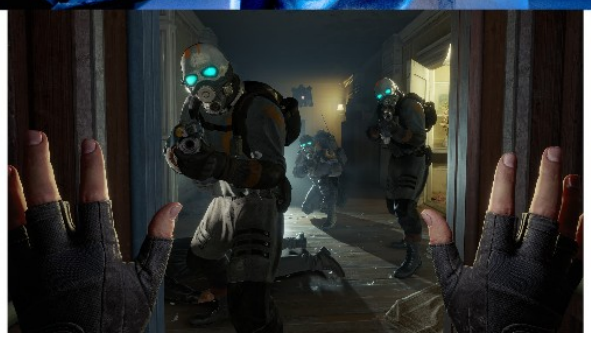
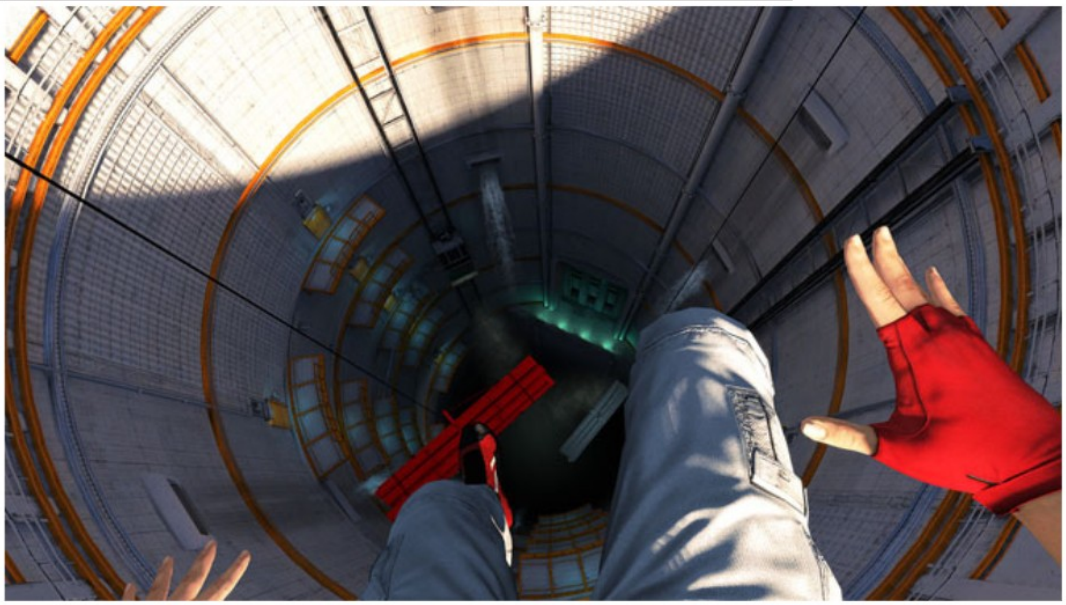






AN OVERVIEW TO THE AUDIO STYLE OF YOUR GAME

Will your game have music?

The game will include non-diegetic background music during the gameplay reflecting the overall theme of the game.

Will music have an influence on your gameplay?

The music will influence the gameplay by setting the ambience during different sequences of the game, for example, if the player is detected by the enemy the tempo of the music will change to suit the scenario.

What sound effects will you use in your game?

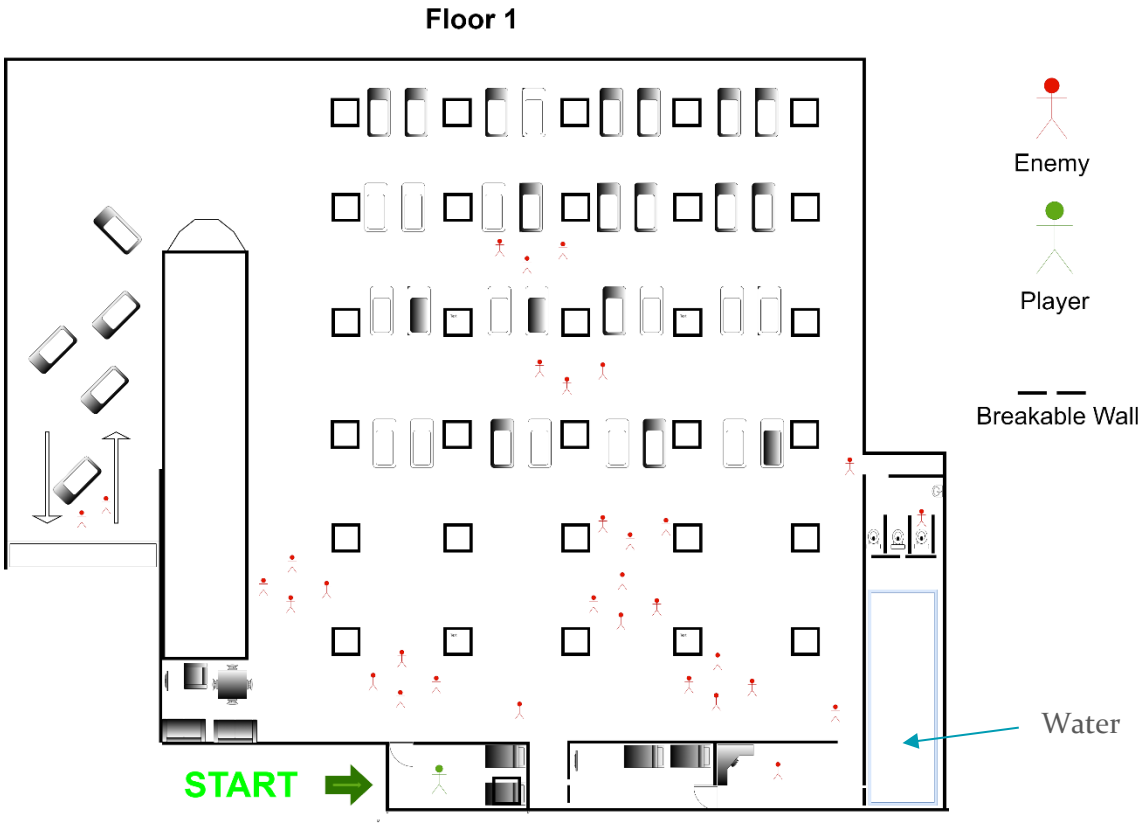
The diegetic sound effects will include firearms, weapons loading, explosions, water effects, objects falling, footsteps over different floor types, punching, human death sounds, falling/ landing sounds, rubble crumbling, shrapnel, human dialogue.

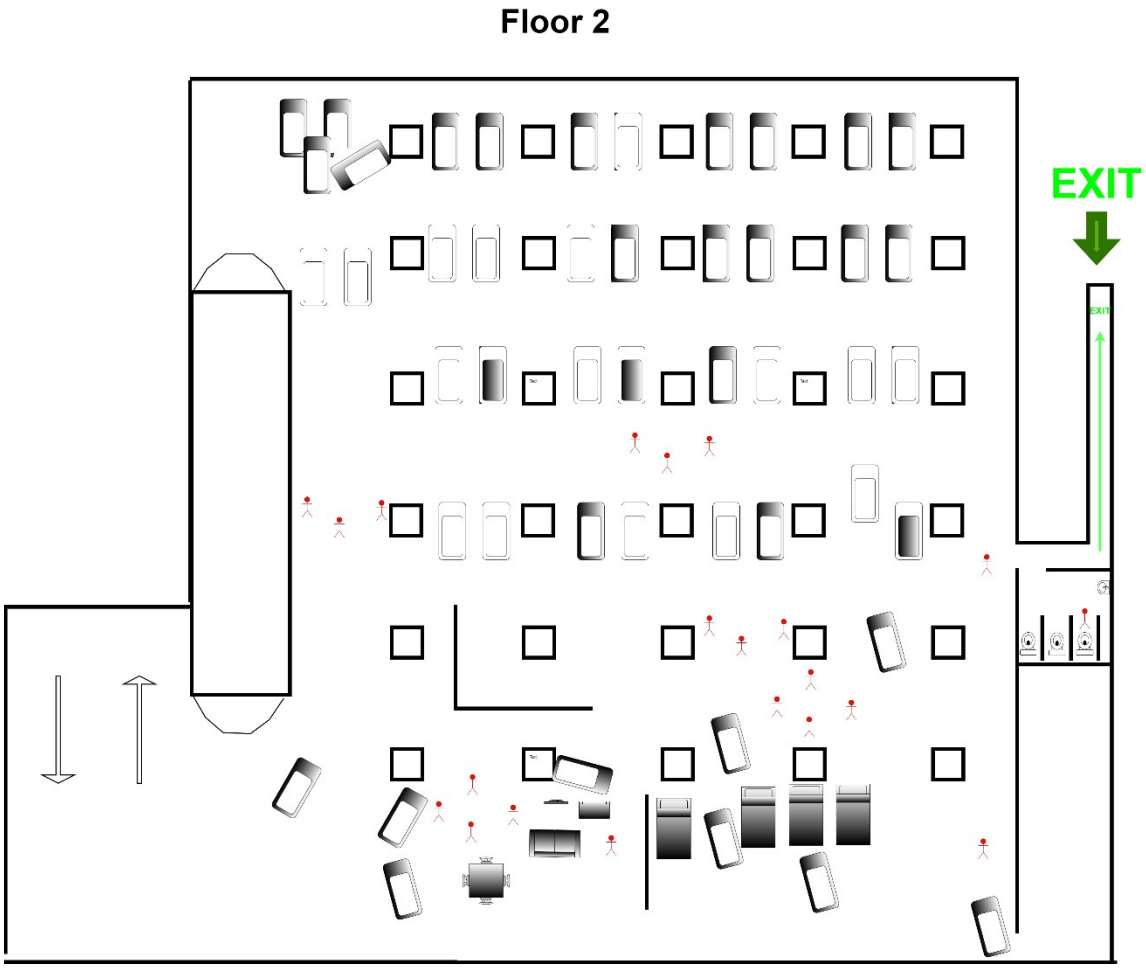
The non-diegetic sound effects will include minimal clicks and digital sounds for navigating through menus, energy power up sounds when the player receives health.

Level Design

AN OVERVIEW TO THE LAYOUT AND DESIGN OF ONE LEVEL IN YOUR GAME

Abandoned Underground Carpark Level





How will the player navigate the level / reach the finish line?

The player will navigate through the level by avoiding enemies and look for visual cues such as weakened walls, places where the player can jump on to, and areas not covered by enemies.

How will the design of your level reflect the theme of your game?

The design of the level will reflect the theme of the game by introducing the player to a derelict urban setting.

User Interface

AN OVERVIEW FOR THE DESIGN OF YOUR MAIN MENU

The game will include a lose screen when the player is killed. It will use a ragdoll effect in the first-person view depicting the death of the main character. The characters vision will become distorted, and some font will be displayed giving the player the options to "Play Again" or "Quit". The style of the menu will reflect the theme by displaying a digital minimalistic style font.

A BRIEF OVERVIEW IN HOW YOU INTEND TO DEVELOP OR SOURCE EACH ASSET IN YOUR GAME

The audio assets for the game will be partly sourced creative commons, royalty free assets from sources such as Freesound.org. Tools such as Audacity could be used for mixing sound effects if needed and Bosca Ceoil could be used for creating background music. The visual assets for the game will be created in Blender and exported to Unreal Engine 5 as FBX files. The game characters will be created in blender.

Unique Mechanics

Artificial Intelligence System:

This game will incorporate elements of stealth and action, for this to be achieved the system will require a decent standard of artificial intelligence game mechanics. The enemy bots will have the ability to detect or seek out the player throughout the level using sight and sound. This can be achieved by using pawn sensing or alternatively ai perception. To dictate the systems actions for the AI, the behavioral tree will be used to cycle through the enemy's different states.

Hit System:

The game will require a system to determine collisions between actors, be it attacks between actors, or collisions between the player and the environment. OnComponentHit and Event Hit are generally used for these types of events.

Chaos Physics System:

Elements of this game allow for the destruction of the environment, therefore the chaos destruction system will be employed. Other elements of the chaos system such as the ragdoll and chaos cloth could be explored.

Raycasting:

A raycasting system will be included for the gunfire physics in the game. This will also help the enemy AI track the position of the player when the player takes a hit.