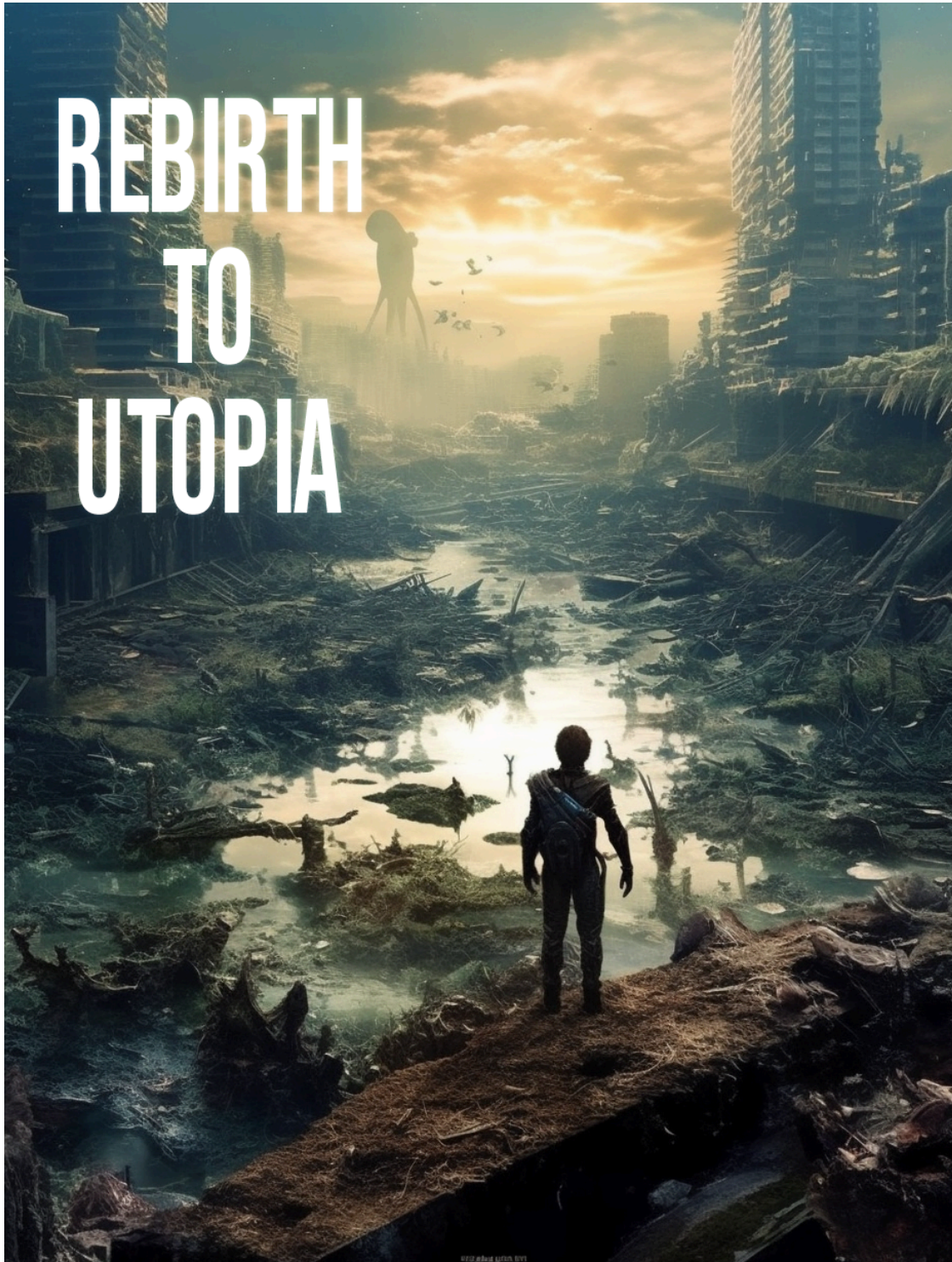


GAME DESIGN DOCUMENT

Author:

Group 5

Thi Kim Phung Nguyen & Khac Trien Nguyen



Title and Genre

Title: **Rebirth to Utopia**

Genre: 3D Stealth Action Game

In the game, players will embark on an exciting journey in a post-apocalyptic world where they possess the extraordinary power of time travel between 2 eras (post-apocalyptic and sci-fi alien invasion) in the same location. With time manipulation as a core mechanic, players can explore the level layouts, gain knowledge of mission objectives, overcome enemies, and also unravel mysteries.

Brainstorm Session:

https://miro.com/app/board/uXjVMFt8420=?share_link_id=607884707806

https://www.destinypedia.com/Seven_Pillars_of_Design

Game Mechanics & Monetization

- **Pillars (core emotions, objectives, game experience)**
 - **Stealth:** The player will use stealth to traverse the map and reach the objective while avoiding enemies.
 - **Explore the map:** The player can investigate the map to discover hidden secrets, hidden routes, and hidden objects.
 - **Curiosity:** The player can discover hidden objects that aid them in their stealth mission, encouraging further exploration for hidden items.
 - **Strategize to overcome obstacles:** The player will use all of their surrounding environment, ability, and map layout to strategize the fastest way to pass all the enemies and reach the objective.
- **Theme**
 - The sense of accomplishment derived from investigating and discovering new areas on a game map is essential for assisting players in developing effective routes and strategies. By allowing players to discover concealed regions, they are able to engage in strategic planning and navigate the map more efficiently. This sense of accomplishment not only propels their motivation, but also enables them to develop their own distinctive strategies for overcoming obstacles.
 - The act of discovering new maps and areas within a game provides players with a rewarding experience, allowing them to forge their own path and develop individualized strategies. This exploration element increases player engagement by nurturing a sense of ownership and originality. By enabling players to discover previously undiscovered areas, game designers encourage strategic thought and empower players to adapt their playstyles. This blend of exploration and strategy creates a captivating and immersive gaming experience.

- **Core Loop**

- **Explore the map:** The player explores the map and avoids enemy patrol. During the exploration, the player can find hidden objects and routes.
- **Strategize:** During the exploration, the player can strategize new ways to get past enemy patrol with the new route or items that they found.
- **Overcome:** After players come up with their own strategy, they can apply it to their gameplay and try to overcome the challenge and reach the end objective.
- **Move to the next challenges:** After players complete the challenge, they can move on to the next challenges with harder difficulty and different map layouts.
- **Repeat the progress**



- **Controls**

- **Basic Movement:** Players can move around freely to their desired direction.
- **Teleport:** Players have the ability to teleport between the past and future this will change the enemy type and location.
- **Interact with objects:** some interactable objects on map can help players in their stealth mission such as players can interact with a trash container and hide in there to avoid detection.
- **Rewind object to the previous position:** Players have the ability to rewind an interactable object to its previous location. For example, players have interacted with the container crane which drops it down to block the way to prevent enemy and player from passing through but the player can rewind the container to the original position to access the area again.

- **Camera Angle & View Restrictions**

- **Camera Angle:** **Isometric** camera angles have gained popularity in gaming due to their unique perspective and immersive qualities. This camera angle, resembling a top-down view with a fixed overhead position, offers a three-dimensional illusion that enhances gameplay. The isometric angle provides players with a better understanding of depth and dimensions, allowing for improved exploration, strategic planning, and tactical decision-making. This camera perspective is particularly well-suited for showcasing

detailed environments of the game and intricate level designs. Its visual aesthetics and captivating nature contribute to an engaging gaming experience.

- **View restrictions:** Players can only see the area close to where they are standing.



(Diablo 4 Camera Angle and View)

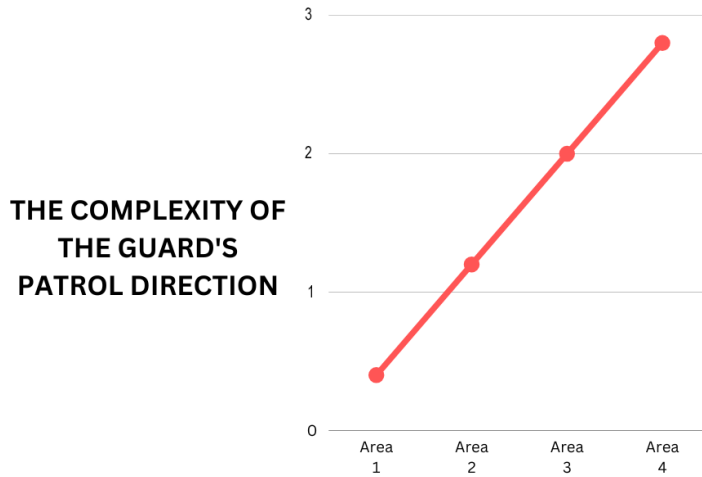
- **Gameplay Mechanics**

- Death condition:
 - Directly attacked at close range human guards.
 - Instant death when detected by advanced human guards.
 - Attacked by alien guards with their tongues at close range.
- Win condition: The player completes all of Dr. Peter's missions and installs the weather control machine successfully in the control room.
- Players use the abilities (rewind object to the previous position, time switching) to overcome obstacles including 2 types of human guards and 2 types of alien guards (of the alien reptile race), in a restricted play area by vision. Human guard is in the **past**, and alien guard is in the **current time**.

Basic human guard	Advanced human guard	Basic alien guard	Advanced alien guard
When the player is within sight of the human enemy guard, they will come and attack the player directly .	Using sniper , guards have the ability to observe from above . When the player enters the guards' field of view, the player has a few seconds to hide before they get shot and die instantly.	When the player is within sight range of an alien guard, these reptilian aliens will attack with their tongue .	The guard's eyes and body are in 2 separate locations . Therefore, if the player is detected by alien guards, they must seek for their body in order to fight or avoid them; otherwise, the alien's body will automatically locate the player and kill them using their vision.

- There will be **4 playable areas** on the map, and **the difficulty will escalate** with each area. Area 1 will be the simplest, and area 4 will be the most challenging. The **4 factors** affected by each difficulty include:

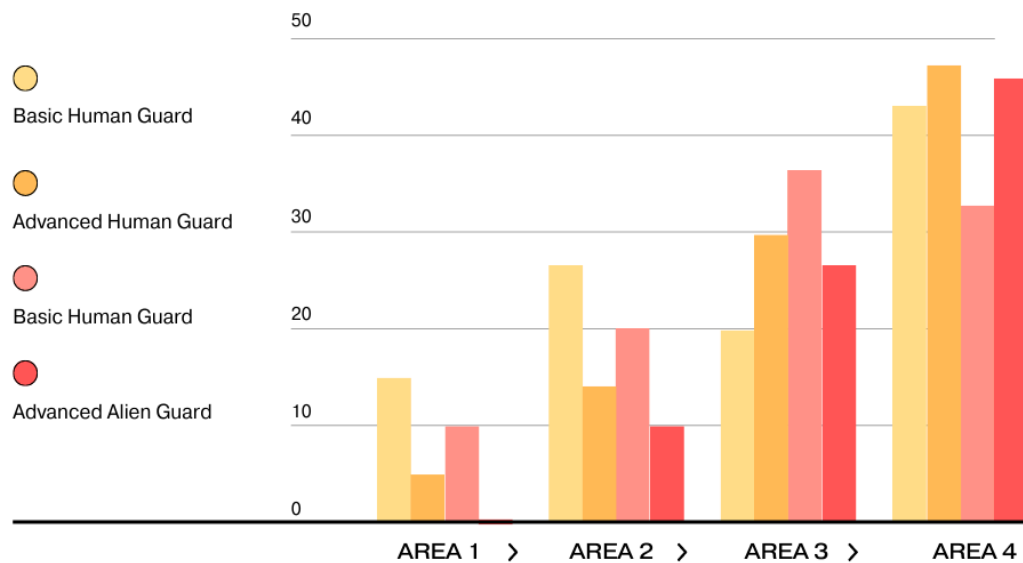
- **Enemy patrol routes**



- **Number of enemies**

NUMBER OF ENEMIES IN 4 AREAS

The number of enemies in 4 different areas is not fixed, and may be changed during play testing for game balancing.



- Types of enemies in each area in 2 time eras (Alien is in **current time**, Human Guard is **in past time**)

	Basic Human Guard	Advanced Human Guard	Basic Alien Guard	Advanced Alien Guard
Area 1	✓	✓	✓	
Area 2	✓	✓	✓	✓
Area 3	✓	✓	✓	✓
Area 4	✓	✓	✓	✓

- More restricted movement in specific environments (only in level 3 and 4): swamps, and low light.



Swampy Area

Story & Characters

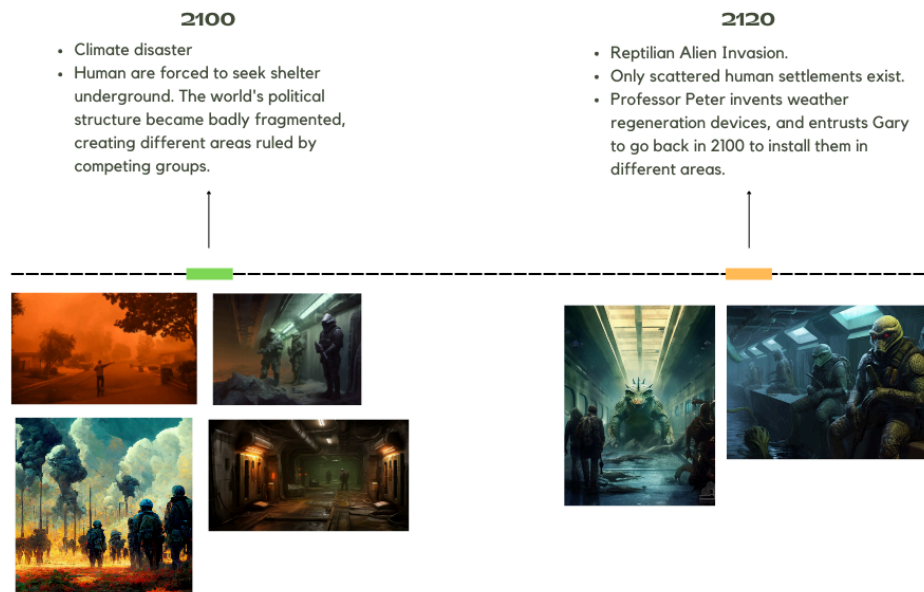
Summary

In the year 2100, after Earth endured a series of natural disasters and climate change, humans were forced to migrate underground for survival. The world's political landscape became severely divided, leading to the emergence of different territories governed by opposing factions.

Following the climate catastrophe, Earth's conditions become inhospitable for humans but ideal for an extraterrestrial reptilian species, attracting them to invade in 2120. Humans united to resist the alien threat, and the internal conflict was dissolved, leaving only the battle between humanity and the reptilian aliens. The alien forces nearly occupied all territories on Earth, with only scattered pockets of surviving human settlements remaining.

At this time, Peter, an environmental researcher, invented weather regeneration machines capable of restoring Earth's climate to a pristine state. He entrusted Gary, the game's main character and also a divergent individual with the ability to time travel at the same location, with the mission to install 4 weather regeneration machines in different locations across 4 countries before the alien invasion occurred, with the assistance of Jackie, a system hacker and also Peter's close friend in 2100.

STORY TIMELINE

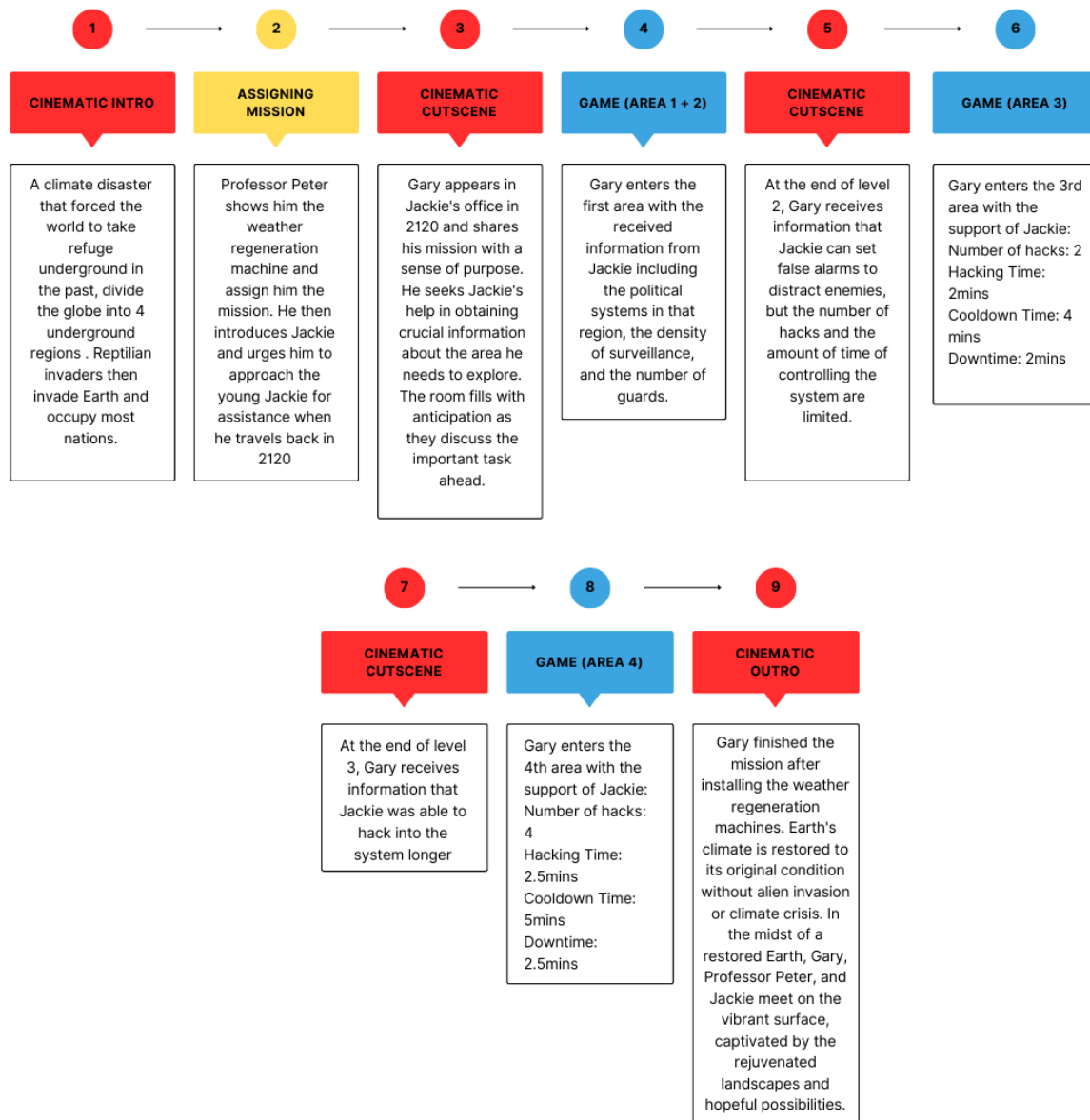


Player Experience

Players will have the freedom to travel between the present and the past, enabling them to carry out missions and avoid challenging situations. While on these missions, they will need to stealthily navigate through both human and alien adversaries in order to reach the designated mission locations

Story Structure

1. At the beginning of the game, the player is introduced to the backdrop of a past climate disaster that forced the world to take refuge underground, providing an understanding of the story's circumstances. The narrative continues with an invasion by reptilian aliens on Earth, resulting in the occupation of most territories worldwide.
2. The player then returns to reality, appearing in Professor Peter's laboratory, where they are assigned with installing 4 weather regeneration machines at 4 specific locations in 4 different countries in the past. Professor Peter's close friend, Jackie, a computer programming expert, joins the mission to assist Gary in navigating the enemy's movements when he travels back in time.
3. The game begins with the player appearing in the 1st map set in the past, amidst a civil war among humans. Here, Gary seeks out and encounters the young Jackie, who he will unveil his mission to and ask for assistance. With Jackie's expertise in hacking systems, Gary gains a database into the current state of the world including ***the political systems in that region, the density of surveillance, and the number of guards***. In addition to providing this information in levels 1 and 2, Jackie assists Gary in evading enemy deployments in levels 3 and 4 by setting off false alarms.



	Area 3	Area 4
Number of hacks	2	4
Hacking Time	2 mins	2.5 mins
Cooldown Time	4 mins	5 mins
Downtime = Cooldown Time - Hacking Time	2 mins	2.5 mins

Plot Outline


Players encounter more difficult enemies each time they move to the next mission. The more missions they complete there, the more enemy types they will encounter.

Relationship of Narrative and Mechanics


Since the main character in the story is an extraordinary individual with the ability to time travel between two different eras at the same location, players will have the opportunity to control this time-shifting power within the game's world map. This unique feature allows players to seamlessly transition between two distinct time periods, all while remaining in the same physical position. By utilizing this ability, players can evade enemy detection, explore the differences between the two maps representing different eras, and uncover hidden paths that can help them complete their missions swiftly.

Characters


GARY	
Type	Main Character
Personality	Tactical
	Determined
	Curious
	Endurable
	Patient
	Sociable and love dogs
	Honest and open, but also cautious and may have reservations or doubts about the intentions or trustworthiness of others.
Main Arc	Throughout the game Gary will embark on a captivating journey

	<p>that takes him through two contrasting worlds: the present and the past.</p> <ul style="list-style-type: none"> ● He will witness the challenges faced by people who were forced to seek refuge underground in the past world. ● Additionally, Gary will bear witness to the devastation caused by alien invaders in the present world, as they ruthlessly destroy his homeland and threaten the lives of humanity.
Relationship to other characters	
To Professor Peter	Student
To Jackie	Companion
Appearance	Short and black hair
	Small
	Black eyes
	Wear a t-shirt with suspenders
Abilities	<ul style="list-style-type: none"> ● Switching time at the same location: the ability to shift between 2 points in time while maintaining a fixed physical location. It can be used during missions to avoid enemy detection. ● Rewind: the ability to revert an object to its original location and shape. (from level 2) ● Stealth: the ability to move or act in a quiet, careful, and unobtrusive manner, avoiding detection or attention from others

PROFESSOR PETER	
Type	NPC
Personality	Intelligent
	Diligent
	Creative

	Sincere
	Reliable
Main Arc	He will make every effort to help Gary understand his powers and provide him with knowledge about the alien invaders, aiming to assist him in the best way possible.
Relationship to other characters	
To Gary	Mission Giver
To Jackie	Close Friend
Appearance	50 years old
	Tall
	Square face
	Short brown hair
	Wear an square-shaped eyeglasses
Abilities	<ul style="list-style-type: none"> • Study the climate and the environment • Develop devices that mimic nature

JACKIE	
Type	
Level 1 & 2	NPC
Level 3 & 4	Companion
Personality	
	Clever
	Introvert
	Quick-witted
	Action-oriented

	Fashionable
	Responsible
Main Arc	He will make every effort to support Gary by providing information about the past world and create distraction to the enemies.
Relationship to other characters	
To Gary	Companion
To Professor Peter	Close Friend
Appearance	Young in his thirties
	Have an average height, and slightly slender build
	Have short hair, and wear a single earring in one ear
	Wear a big eyeglasses
Abilities	Hack the area system and create distraction for players to sneak through.

Setting & World

Scope & Shape

In this game, players will have the opportunity to explore four distinct zones, each representing a different country. Within each zone, players will navigate through a partially open map. While there are predetermined paths to follow, players will also have the freedom to choose different routes and even backtrack to previous locations within the same zone. This design allows for a more immersive and dynamic experience as players venture through each zone's unique environment.

Backstory

The past world is where Earth has experienced heavy climate change that forces humans to seek refuge underground. In the present world, reptilian aliens have found the current Earth to be a perfect habitat, therefore human beings are forced to take refuge in underground bunkers all around the planet.

Map



Art & Sound

Art Direction Summary

The art direction of the game will focus on creating a visually captivating and immersive post-apocalyptic world, contrasting with the futuristic alien invasion era. The overall art style will aim to convey the sense of desolation and the struggle for survival in the post-apocalyptic setting, while also showcasing the advanced technology and alien presence during the invasion era.

Post-Apocalyptic Era

Environment: The post-apocalyptic world will be characterized by ruined cities, overgrown nature, and decaying infrastructure. The environments will feature a combination of urban landscapes reclaimed by nature and underground settlements where humans take refuge.

Visual Tone: The visual tone will be gritty and somber, emphasizing the harsh conditions and the struggle for survival. The atmosphere will be heavy and moody, reflecting the aftermath of natural disasters and the loss of civilization.

Lighting: The lighting will reflect the gloomy and desolate atmosphere, with dim natural lighting, broken streetlights, and flickering neon signs.

Color Palette: The color palette will be predominantly muted and desaturated, with earthy tones, grays, and browns, emphasizing the sense of decay and despair.

Textures and Details: The environments will feature weathered textures, cracked surfaces, and overgrown vegetation, showcasing the passage of time and neglect. Buildings and infrastructure will be dilapidated, with crumbling walls, broken windows, and rusted metal.

Architecture: Buildings will be dilapidated, crumbling, and overgrown with vegetation, showcasing the aftermath of the natural disasters. Underground settlements will have a utilitarian and makeshift aesthetic, with limited resources and basic structures.

Alien Invasion Era

Environment: The alien invasion era will exhibit a stark contrast, featuring advanced futuristic architecture, sleek designs, and technological elements. Cities will be transformed with alien structures, advanced machinery, and extraterrestrial flora.

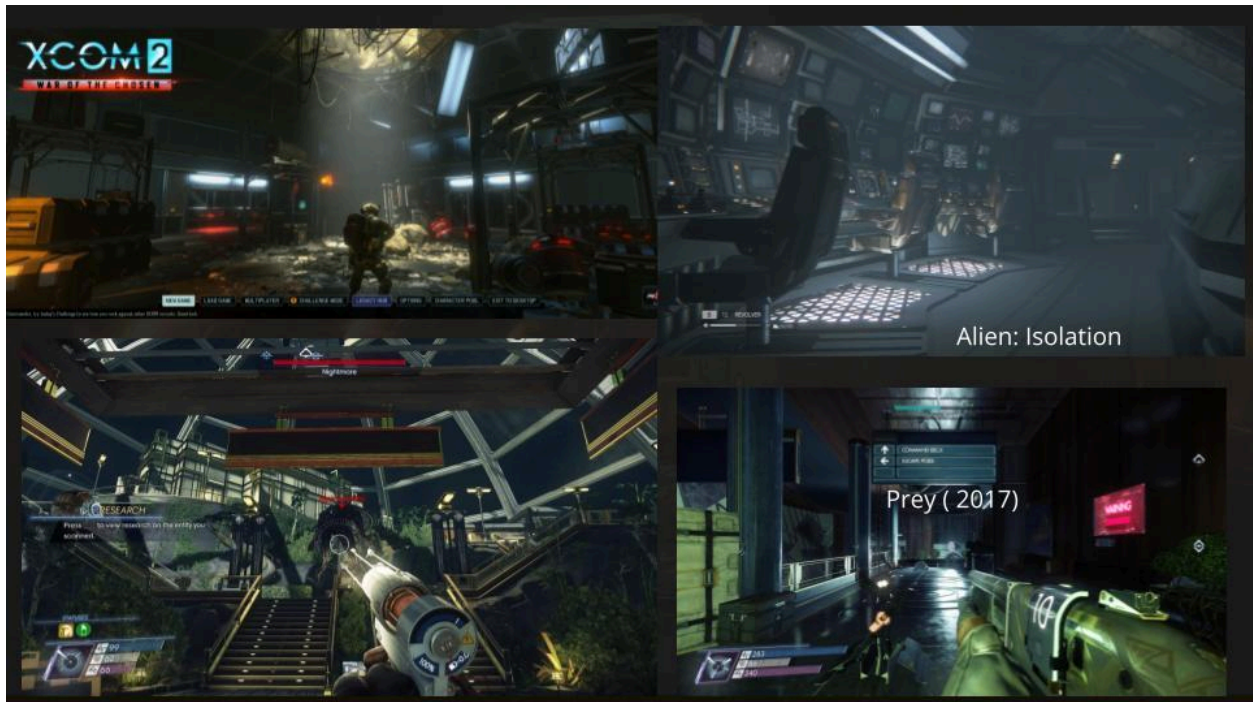
Visual Tone: The visual tone will be sleek, futuristic, and otherworldly. The atmosphere will exude an aura of advanced technology, with a sense of alien mystery and dominance.

Lighting: The lighting will be more vibrant and dynamic, with futuristic neon lights, glowing energy sources, and high-tech displays illuminating the environment.

Color Palette: The color palette will be more vibrant and saturated, incorporating vibrant blues, purples, and neon colors to represent the alien technology and their influence on the environment.

Architecture: The alien structures will showcase a blend of organic and futuristic designs, with smooth curves, metallic surfaces, and intricate alien motifs.

Moodboard



Reference for tone and visual of the game environment



When player is in danger (near to enemies), the screen become darker

Sound Direction Summary

This game revolves around stealth gameplay, emphasizing the importance of sound direction for an immersive experience. The player will explore two distinct worlds - the past and the future - each with its unique ambient sounds. In the past, where humanity has taken refuge underground, the ambience will resemble sewer-like surroundings, featuring the sounds of water flowing through pipes or dripping onto hard surfaces.

On the other hand, the future world, ravaged by alien invasion, will be characterized by a more chaotic soundscape, incorporating elements of destruction such as burning fires, crumbling walls, and leaking electricity. Throughout the gameplay, sound cues will provide vital information to the player, alerting them to nearby enemies through footsteps or signaling danger when enemies detect their presence. As for the game's music, it serves to immerse the player in a stealth mission, creating a sense of urgency and emphasizing the need to complete the mission with utmost efficiency.

Sound Samples

Sewers sound

[▶ Sewers | Adventure Ambience | 1 Hour #dnd](#)

Fire sound

[▶ Fire Sound Effect](#)

Footstep

<https://youtu.be/ZUqVkrdf1w>

Theme song

[▶ Stealth Music - Ghost \(Hour Loop\)](#)

[▶ Heist | D&D/TTRPG Music | 1 Hour](#)

Level Design

Synopsis

Players will be introduced to the playable level right after the main story introduction. When the player gets into the level they will be located in the past world and the player will be introduced to the game's main mechanic "time travel" where the player teleports to the future version of the level and can go back to the past version any time they want. Players will be shown that some area or item are hidden in the past version and may show up in the future version, so they are encouraged to explore two different versions of the level.

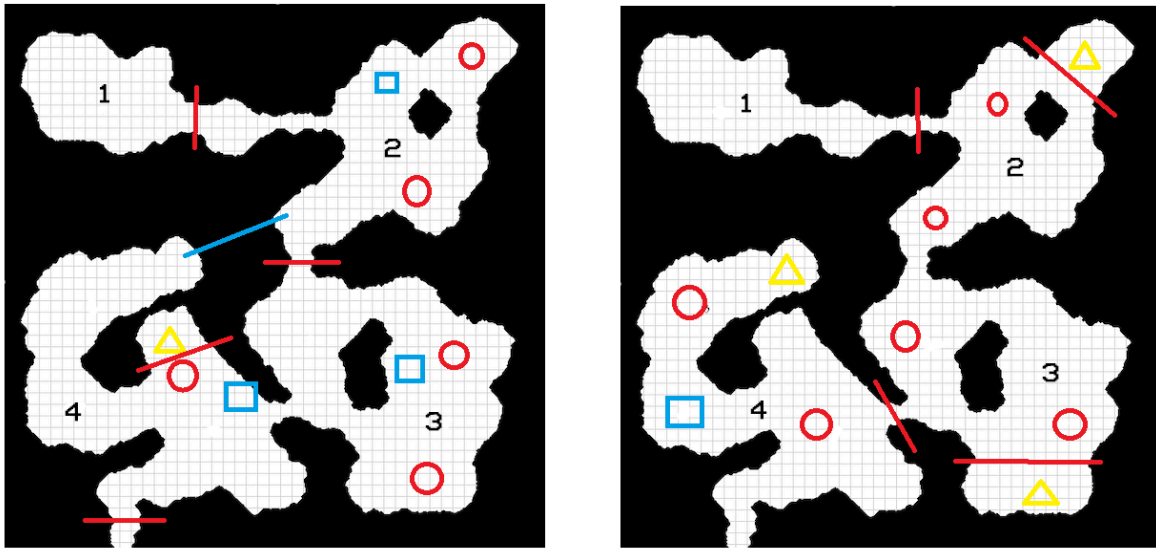
Player Objective

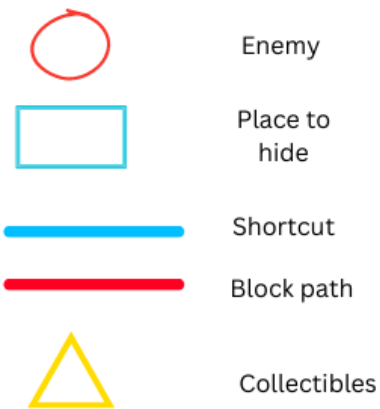
The main objective of the player is to stealthily travel through the level to reach the end of the map and avoid enemy detection as much as possible.

Player Introduction

The player will be introduced to the level by a cutscene tie with the game's main story. In the cutscene, there will be an overview of both versions of the map and the in-game character will explain to the player how the ability works.

Level Details





Player Path

Objective: Gary and Jackie must install weather regeneration machines in four specific locations in the past to save the world from climate disaster and reptilian alien invasion.

Level 1: Civil War Chaos

- Find and team up with Jackie in the war-torn city.
- Gain information about political systems and human guard placements.

Level 2: Infiltrating Government Archives

- Infiltrate a heavily guarded government facility.

Level 3: False Alarms and Diversion

- Plant false alarms at a reptilian alien outpost to distract them.
- Avoid detection and confuse alien guards.

Level 4: Retrieving the Weather Regeneration Machine

- Strategically approach the location of the weather regeneration machine.
- Defeat the powerful alien commander guarding it.

Victory: Successfully install all weather regeneration machines, saving the world from disaster and defeating the reptilian alien invasion.

Intended Platform : PC

Why choosing PC	
Versatility and Customization	PC gamers appreciate the flexibility to customize their hardware, graphics settings, and controls according to their preferences, ensuring the optimal experience for your game's intricate mechanics.
Mouse and Keyboard Precision:	The precision of a mouse and keyboard setup enhances gameplay mechanics that require strategic planning, precise movements, and accurate timing, such as the time manipulation and stealth elements in your game.
Graphics and Performance	PCs can offer superior graphics and performance capabilities, allowing players to fully appreciate the detailed environments, art direction, and immersive sound design of your game.
Global Reach	PCs are widely accessible globally, enabling you to reach a diverse audience that appreciates a range of gaming genres, including stealth action and immersive storytelling.

Target Audience

- **Stealth Enthusiasts:** Fans of stealth games who enjoy the challenge of staying hidden, planning precise moves, and outsmarting adversaries would be highly engaged with your game's core mechanics.
- **Puzzle-Solving Gamers:** Individuals who relish solving complex puzzles and riddles to advance in the game, as your time manipulation mechanics and strategic aspects will appeal to their problem-solving nature.
- **Narrative Adventurers:** Players who are drawn to narrative-rich games with deep lore and character development. Your game's fusion of an engaging storyline and immersive gameplay could captivate those seeking emotionally impactful experiences.
- **Strategic Thinkers:** Gamers who enjoy tactical thinking, devising unique strategies, and adapting to changing scenarios. Your game's emphasis on planning and adapting would resonate with this audience.
- **Art and Music Appreciators:** Those who value the artistic and auditory aspects of a game. Your art direction and sound design could attract players who seek visually captivating and audibly immersive experiences.
- **Science Fiction and Time Travel Enthusiasts:** Fans of science fiction themes and time travel concepts could be intrigued by the unique gameplay premise your game offers.

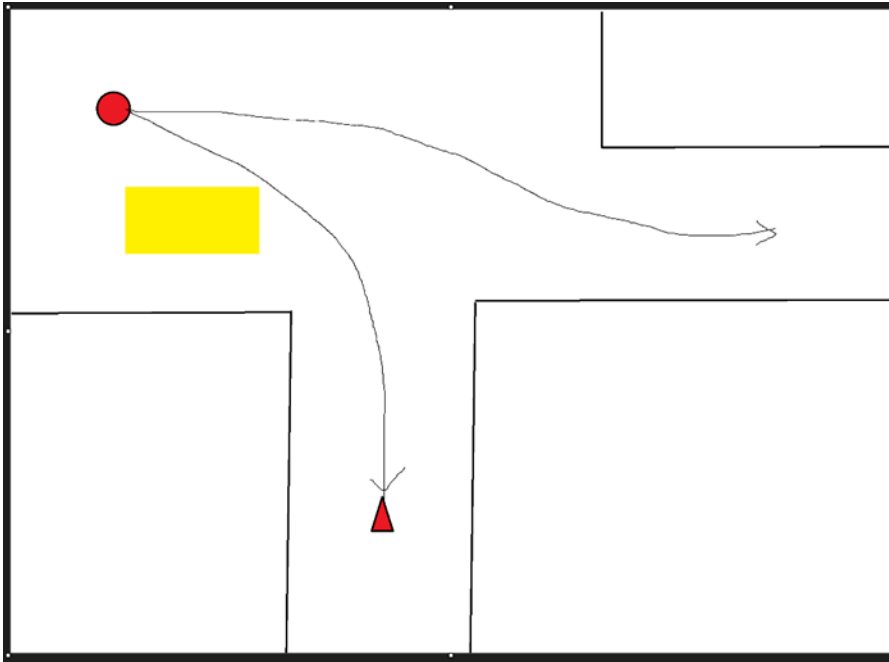
Game Engine

Unity

AI

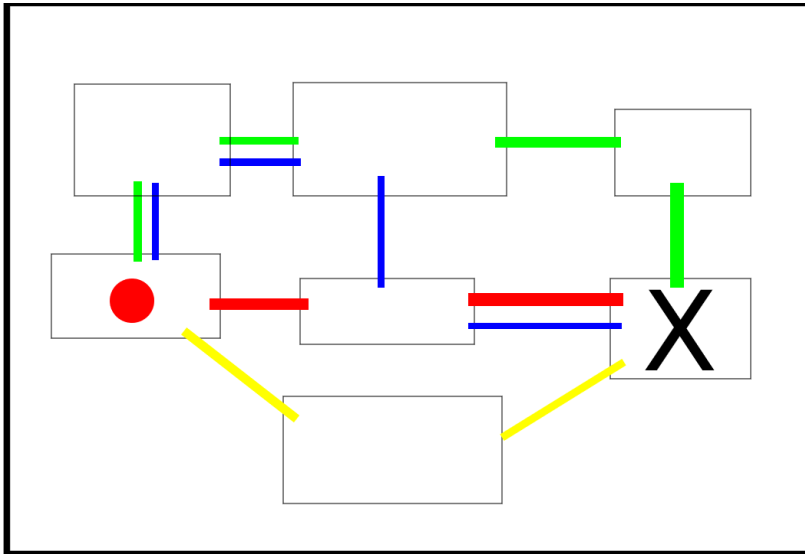
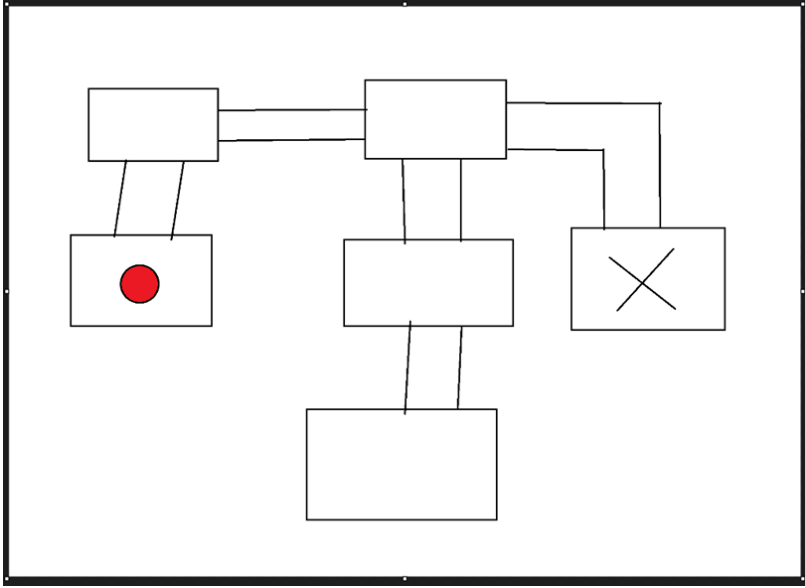
Steering: Dynamic steering

- o Avoiding obstacles
- o Tracking player
- o Move to a predetermined location



Pathfinding

- o Navigating the map during patrol
- o Find the shortest route when tracking the player



Decision making

- o Depending on the player being within sight of the enemy or not, the enemy will chase and attack the player.

When player is within enemy's attack range				
	Basic human guard	Advanced human guard	Basic alien guard	Advanced alien guard
Guard's behavior	Chase to player & attack them	Observing from above & shooting player	Attack the player by their tongue that will track the player to a certain distance.	Player detected by the guard's eyes, then the enemy's body will locate the player, chasing and attacking them. Their body can also detect obstacles and players at very close range.

When player is out of enemy's attack range					
		Basic human guard	Advanced human guard	Basic alien guard	Advanced alien guard
Guard's behavior	When the player hasn't been detected	Patrolling around a specific 2 or 3 point-location	Patrolling at a higher location than the basic guards.	Patrolling around a specific 2 or 3 point-location	The guard's eyes stay in a static location; and their body patrolling in a different location in the same area.
	When the player had been detected	Patrolling around the last location where the player is detected.	Observing the last location where the player is detected.	Their tongue retracts from the last position they detected the player.	Their body patrols around the last location the player detected within a short period of time. After that period, their eyes will move to that location, and their body will move to another location.

AI - SPRINT PLAN

Git Project: <https://github.com/nktrien/CapStoneProject.git>

Trello Board: <https://trello.com/b/c4qVm11u/artificial-intelligent-game307>

SPRINT 1 - STEERING

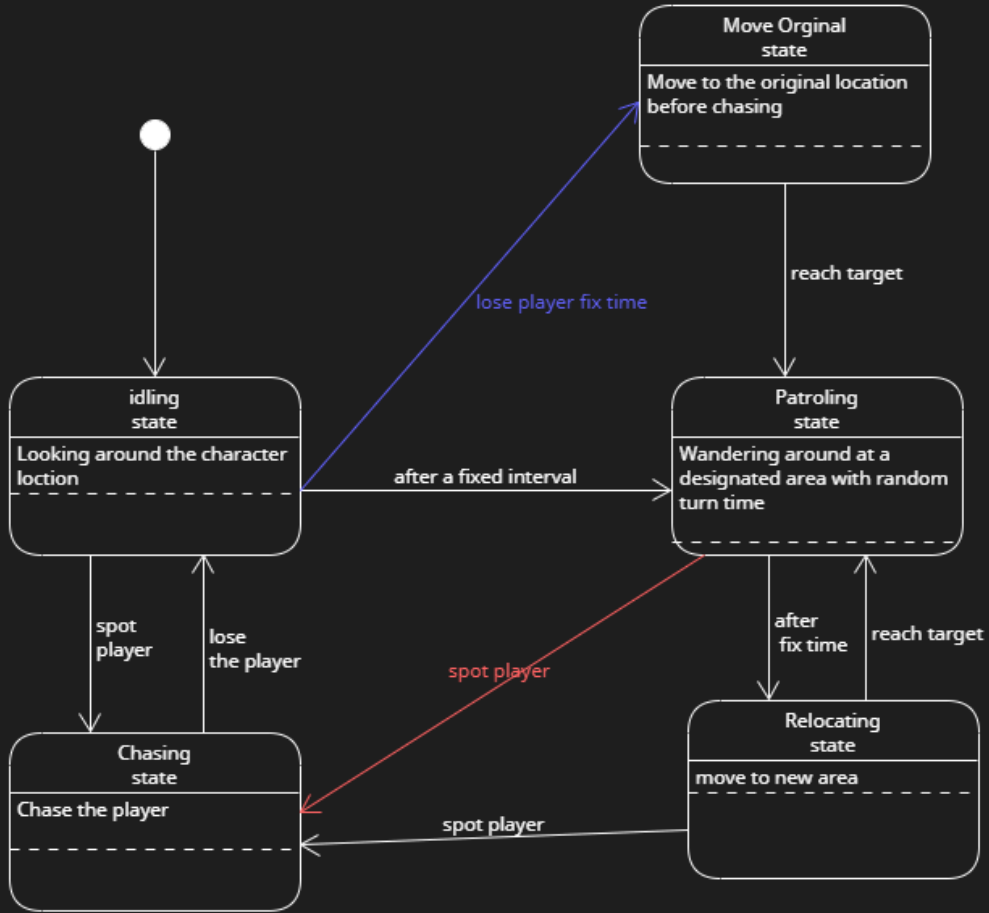
Tasks	NPC Types	Expected Due Date	
Create Unity Project + Git Repository		Update on Trello Board	Mandatory
Create Steering - Pursue Algorithm	Basic Human and Alien Guard Advanced Alien Guard		Mandatory
Create Steering - Wander Algorithm	All 4 guards		Mandatory
Create Steering - Align Algorithm	Advanced Human & Alien Guard		Nice to have
Create Steering - Arrive Algorithm	Basic Human and Alien Guard Advanced Alien Guard		Nice to have
Implement each of the algorithms (for 4 types of guards)			Mandatory
Group Meeting	10 Feb 2024 14 Feb 2024		

SPRINT 2 - Pathfinding

Tasks	Expected Due Date	
Create Nav Mesh	Update on Trello Board	Mandatory
Create A* - Pathfinding Algorithm		Mandatory
Create Line of Sight Algorithm		Nice to have
Create blockout level for testing		Mandatory
Group Meeting	3,10,13 Mar 2024	

SPRINT 3 - Decision Making (STATE MACHINE)

Tasks		Switch Condition	Expected Due Date	
Idling	To patrolling	No player detection + after a fixed time interval	Update on Trello Board	Mandatory
	To moving to original	Move to the original location before chasing		Mandatory
	To chasing	Detect player		Mandatory
Patrolling	To relocating	After a fixed time interval		Mandatory
	To chasing	Spot player		Mandatory
Chasing	To idling	When player exit range detection		Mandatory
Relocating	To patrolling	AI reach the end point		Mandatory
	To chasing	Spot player		Mandatory
Moving to Original	To patrolling	When AI reach target		Mandatory
Group Meeting	April 1, 8, 15/ 2024			



TIMELINE

