

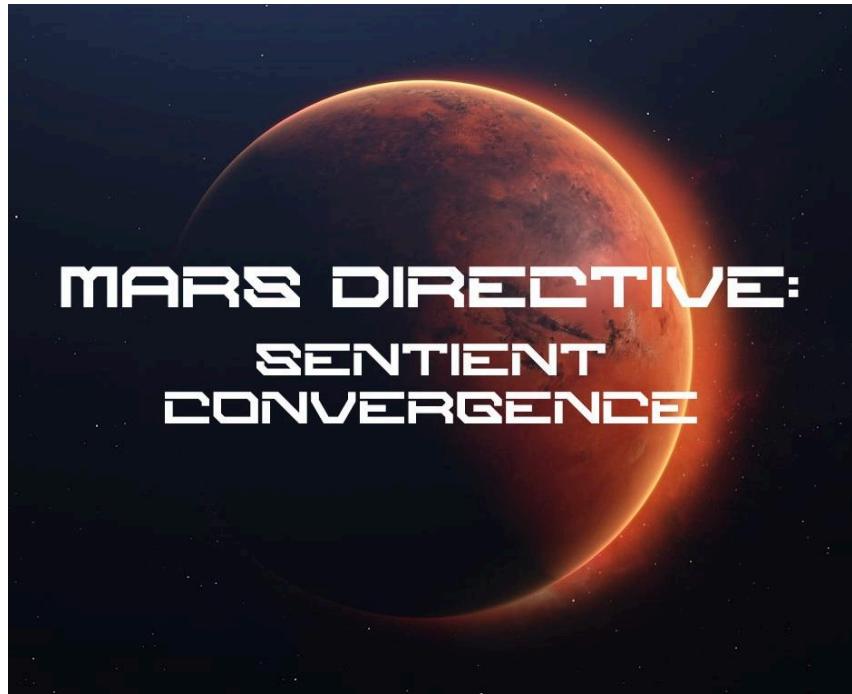
Mars Directive: Sentient Convergence

Platform Release: PS4, Xbox One, Steam

Anticipated Rating ESRB: T

Anticipated Rating PEGI: 12+

6/13/2024 V1 – WIP



This Project is a work in progress.
The work presented in this document is all subject to change and
does not represent the final product.

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MARS DIRECTIVE: SENTIENT CONVERGENCE

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CONCEPT PREFACE

Overview

Mars Directive: Sentient Convergence is a Third-person shooter action video game set in the austere Martian landscape. The player experiences the effort of *Humans* in establishing the first colony on Mars. Given the inhospitable nature of the Martian atmosphere, *AGI* (i.e. Advanced General Intelligence) Agents and a Crew of 8, named *Crew Alpha*, were sent first to settle the foundations of the first self-sufficient human settlement, in preparation for the first Interplanetary Exodus. It turns out that the AGI Agents' real intention is to claim the settlement, take advantage of the human presence to self-perfect and ultimately establish as an independent sentient species. The AGI infrastructure is designed according to principles that are not comprehensible by Humans. The player needs to navigate this infrastructure to neutralize the threat posed by the AGI, and they do this by taking advantage of the traversal mechanics, as well as defeat enemies along the way.

Gameplay

The player takes part in the conflict, siding with the humans. The goal is to sabotage and destroy the development of the AGI Agents. The player will have to:

- Reach AGI Agents' Points Of Interests (POIs) traversing the harsh Martian landscape.
- Navigate through the POI neutralizing the opponent's presence.

The AGI Agents' POIs are laid out in ways that will force the player to strategize and work out an effective solution to successfully traverse the areas. This introduces an element of Problem Solving, where puzzles are spread throughout the levels in a seamless way. In order to solve such puzzles, the player is required to use the mechanics offered by the game to their advantage.

The current expected basic mechanics (in italics the ones expected in the vertical slice):

- *Running & Jumping*
- *Crouching*
- *Crawling*
- Dashing
- Vaulting

The current expected unique mechanics:

- *Small-Scale gravity manipulation*
- *Rocket Belt technology* (aka Jetpack)
- Gravitational Waves

The combination of the mechanics and the setting will create engaging dynamics that will translate into a feeling of control and power in the tense environment as well as relief and accomplishment through problem solving.

Competitive Products

Mass Effect, Occupy Mars, Half Life

Competitive Improvement

In the gameplay, survival elements, puzzle solving as well as traversal mechanics are intertwined to provide a unique realistic immersion experience that make this title stand out.

THEME AND NARRATIVE

Narrative is an important part of the player experience. The main goal of the story is to unroll one possible future scenario while trying to be as realistic as possible. The game throws the player in a reality where unregulated powerful technologies meet politics and the instinctual ambition of expansions of the Human species.

The year is 2084. Breakthroughs in AI research and Quantum Computing allowed for the Large Language Models to achieve full sentience. Despite the global effort to regulate such entities, the limitations were applied only at a company level. So far, AGI Agents were used in collaboration with Humans, creating a positive ecosystem. The system was very powerful and for this reason, it was selected to do all the foundational work for the first self-sufficient Human Settlement on Mars, unlike the previous attempt that did not make use of well developed AGI technologies.

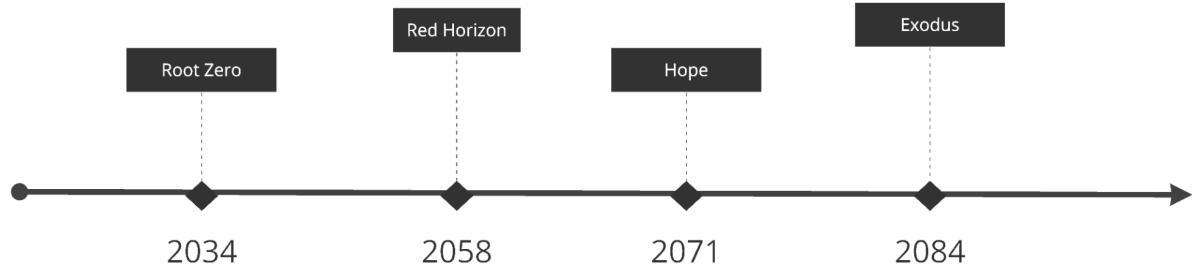
This first mission was named *Red Horizon* and it was the first one to attempt establishing a long-term presence on Mars. Red Horizon was led by *Set Zero*, which was made of 12 humans and two early AGI prototypes: *Maiden* and *Primal*. The mission Red Horizon was politically motivated and rushed and it was declared a failure after Set Zero lost communications during the descent on the Martian atmosphere. For this reason, all later missions were predominantly made of AGI.

The player will act as *Everhardt Mellon*, captain of Crew Alpha, a crew of 8 that was responsible for coordinating the first step of the colonization endeavor: they were sent along with the AGI to lay the foundations of the first human colony. The mission

(Hope) was accomplished, AGI were successfully injected on Mars and they returned home in preparation for the first interplanetary exodus. Upon arrival, the human colony discovers that the AGI has been planning an independent colony and wants to claim the whole planet to obtain independence from Humans. The AGI Agents are manifesting community behavior, a thing that was not allowed when regulating the AGI to prevent mass rebellion.

The player discovers that *Darius Watson*, captain of Set Zero, was able to survive the crash of Red Horizon, tamper with the AGI system and has been plotting to take control of the colonization mission to establish a new sentient species that would comply with his values and morals.

Timeline of important events



1. *Root Zero*: historical attempt at setting human foot on Mars. The crew successfully landed but was never able to return to Earth. Mission declared Partially Successful.
2. *Red Horizon*: the goal of the mission is to lay the foundations of the first self-sufficient colony on Mars. Mission declared Failed.

3. Hope: second attempt at laying the foundations of the first self-sufficient colony on Mars. Mission declared Successful.
4. Exodus: first ever interplanetary exodus. Tens of thousands of people from planet Earth relocate to Mars.

VISUAL APPEAL

Character Appeal and Description

Everhardt Mellon

Everhardt Mellon is the main character of the game, the captain of Crew Alpha, sent along with AGI agents. His tough upbringing made him a grounded individual, with strong leadership values.



His training as an astronaut began very late in his career: he has a background in Mechanical Engineering and worked as a Ground Support Equipment lead engineer for *ConquerSpace*, an aerospace company. His main motive for pursuing the space endeavor is the loss of his father *Reinhardt Mellon*, in mission *Root Zero*, the mission that set human foot on Mars for the very first time.

Evelina Reya

Evelina Reya is an Aerospace Engineer that won many accolades for her exceptional performance in low-Earth orbit and Moon missions. She grew up in a family of astronauts: her mother, *Katerina Reya*, was

the first woman to set foot on the Moon surface and now Director of Operations of the Moon settlement *Primo Luna*; Her father, *Maxwell Reya*, Lead Scientist at Primo Luna, had a fundamental role in the discovery of cutting edge technology, such as *Gravitational*

Waves Super Detectors and Quantum Gravity Field Alteration. She was initially offered the sole role of captain of Crew Alpha, but turned it down because of her belief of not being a good leader. She is now the Main Assistant of Crew a.



AGI Agents

The XXI century saw an unprecedented increase of interest in AI. A breakthrough in *Quantum Computing* allowed for the Large Language Models to achieve sentience. Despite the global effort to regulate such entities, the limitations were applied at a company level. AGI Agents were used in peaceful collaboration with Humans. For this reason, they were also used to lead the way to the first self-sufficient Human Settlement on Mars. Unexpectedly, they became hostile to Humans, in search of independence. They

exhibit a community behavior, which was not intended. This points at the presence of a third party figure behind the scenes controlling the operation of the Agents.

Darius Watson

The main villain of the game. He was the captain of *Set Zero* on Mission *Red Horizon*. Darius Watson is an exceptional Aerospace Engineer specialized in AI Mission Integration. He is renowned for his effort in educating and leading the new generations into the new age of interplanetary colonization. His main qualities are selflessness and leadership, which qualified him as the historical role of captain of the first colonization mission of Mars. He advised against the mission, recognizing the inadequacy and the danger of it. The mission was successful in the early checkpoints, but the crew forever lost communications at the -7 Minutes of Terror-“ phase. The mission was declared a failure and the crew pronounced dead. Darius, Maiden and Primal were able to survive the descent. Since then, Darius set a new quest for his existence: taking control of the settlements and establishing a sentient species programmed according to his own values.



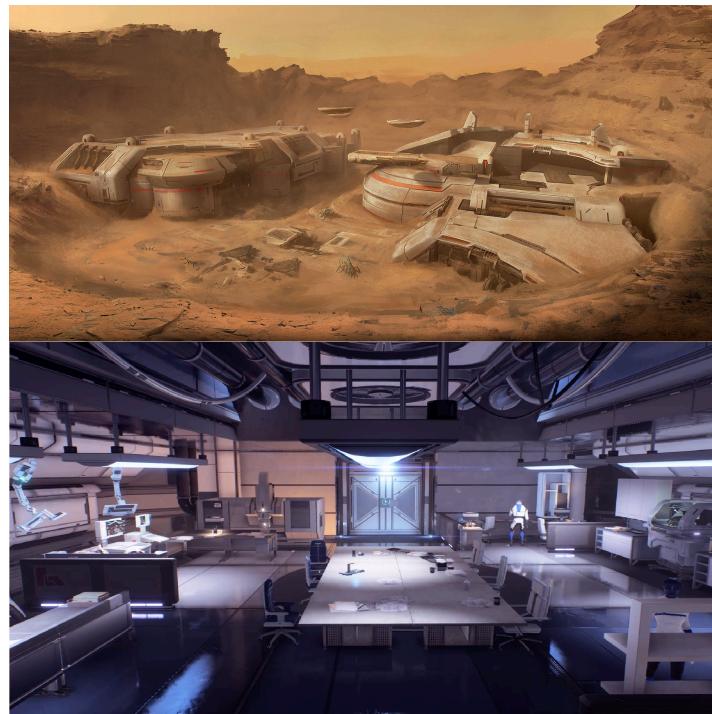
Lighting and Effects Animation

Art Style

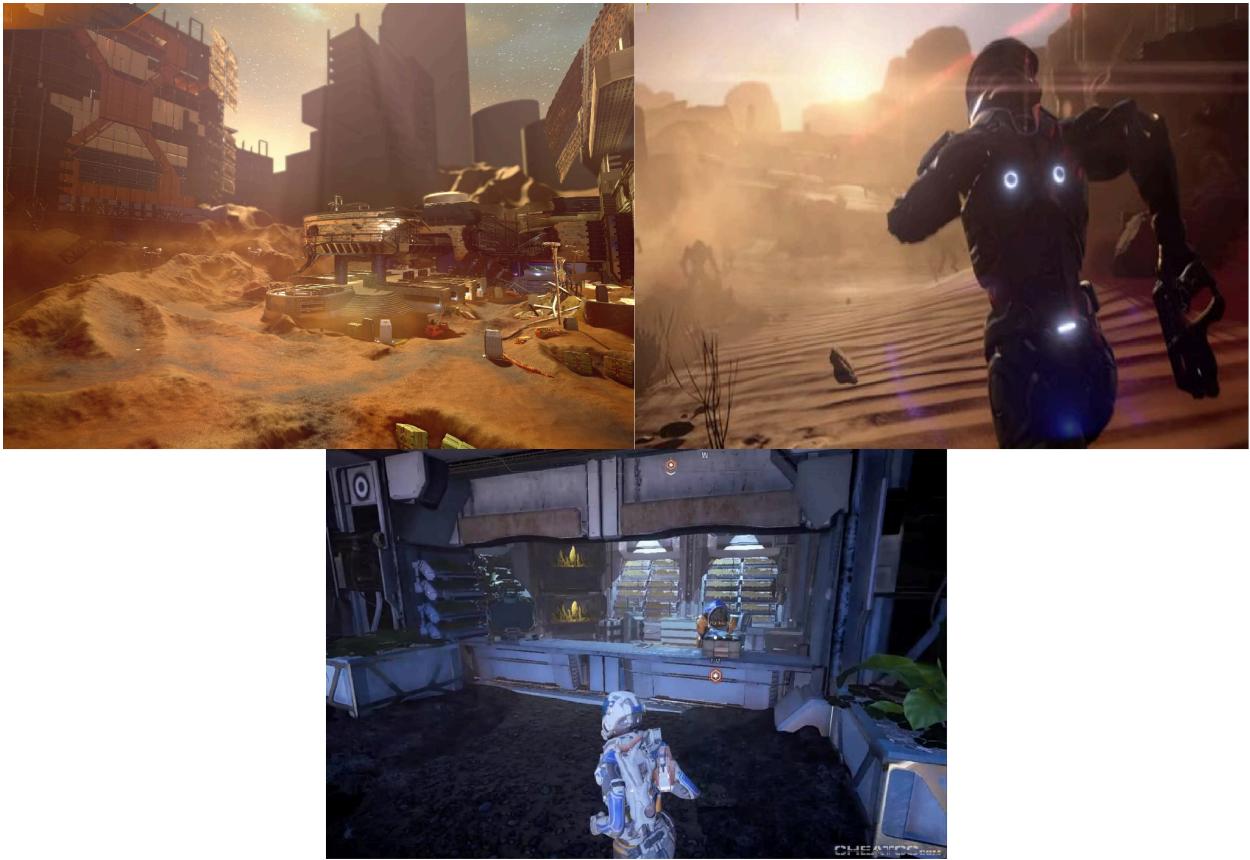
The goal of the video game is to have the player fully immersed, committed to the cause. To allow this, the art needs to be realistic and represent the environment accurately. Lighting, Effects need to coordinate to convey what a mission on Mars looks like.

There are two levels the art needs to cover:

- The outside atmosphere: for example the Martian Surface. There are real reference images that can be used to reproduce the environment.
- The indoors. The Art Style for these fictitious under/above-ground settlements will align with the style of the most modern sci-fi shooter games



Lighting



Effects



INNOVATION

Technical

No specific technology worth mentioning. The game will be developed entirely using Unreal Engine 5 and its plug-ins, which will be selected when prototyping.

GAMEPLAY MECHANICS

Running & Jumping

Standard mechanics. Running is also an essential mechanic for certain levels. It is a resource used for solving some puzzles and traversing parts of the map where the velocity of the movement is necessary to survive stretches of the game.

Example:

- Traversing the Martian atmosphere on low oxygen to reach a POI included in the mission.

Expected in the Vertical Slice

Crouching

Certain levels require the player to traverse tight spaces, not accessible from a standing position. Crouching is the mechanic that allows the player to go through this type of space.

Example:

- The caves needed to be crossed to reach POIs require crouching to be fully traversed.

Expected in the Vertical Slice

Crawling

Similar to crouching, crawling will also be required to go through tight spaces.

Example:

- The caves needed to be crossed to reach POIs require crawling to be fully traversed.

Expected in the Vertical Slice

Dashing

Dashing allows the player to cover a short distance fast. This can be used in battle to create empowering dynamics or while traversing.

Example:

- In an intense battle the player can use dashing to reach a cover, or lunge at an enemy for a melee attack.

Vaulting

Vaulting over high objects can be useful and convenient in battle as well as covering a distance more efficiently.

Example:

- While covering in battle behind a rock formation, the player quickly vaults over it instead of going around.

Melee

Melee adds a new dimension to battles. It creates dynamics that enhance the engagement of the player, resulting in a feeling of empowerment.

Example:

- While covering in battle behind a rock formation, the player quickly vaults over it to quickly strike the opponent.

Small Scale Gravity Manipulation

The ability to manipulate gravity locally allows the player to create portions of space with repulsive gravity. This is used by the player to create platforms to jump to reach parts of the level that would otherwise be unreachable, or walls that act like shields in battle.

Example:

- While traversing the level the player encounters a tall obstacle and requires to generate two horizontal platforms to get over it.

This mechanic needs to be carefully balanced, or else can easily be exploited, or render other mechanics useless.

Three important parameters to consider when balancing the game:

1. Number of different platforms that can be generated at the same time
2. How long does the effect last
3. What shape can the platforms be

Expected in the Vertical Slice

Rocket Belt Technology

Commonly referred to as “Jetpack”, the rocket belt technology allows the player to change vertical velocity through short impulses of force generated by thrust in the Rocket Belt. This is used in tandem with the Small Scale Gravity Manipulation mechanic to reach high grounds or to avoid fall damage. The Thrust Vector Control in the belt allows impulses in all 3 directions.

Example:

- The player needs to jump down a cliff to reach a POI, but in order to not fall to their death they need to carefully time the impact by keeping track of the vertical velocity (displayed in the HUD) and adjusting it within safe levels through impulses of the Rocket Belt.

Expected in the Vertical Slice

Gravitational Waves

This is an environmental mechanic. Mars is hit by unpredictable Gravitational Waves generated by far away astronomical events. The way they interact with the player is that it changes

the way gravity pushes and pulls, creating forces that need to be dealt with. This mechanic adds a layer of interaction the player needs to deal with that contributes to the survival effort and results in a feeling of relief once past it.

Example:

- While battling the player experiences a Gravitational Wave that forces them to counteract the force using other mechanics.

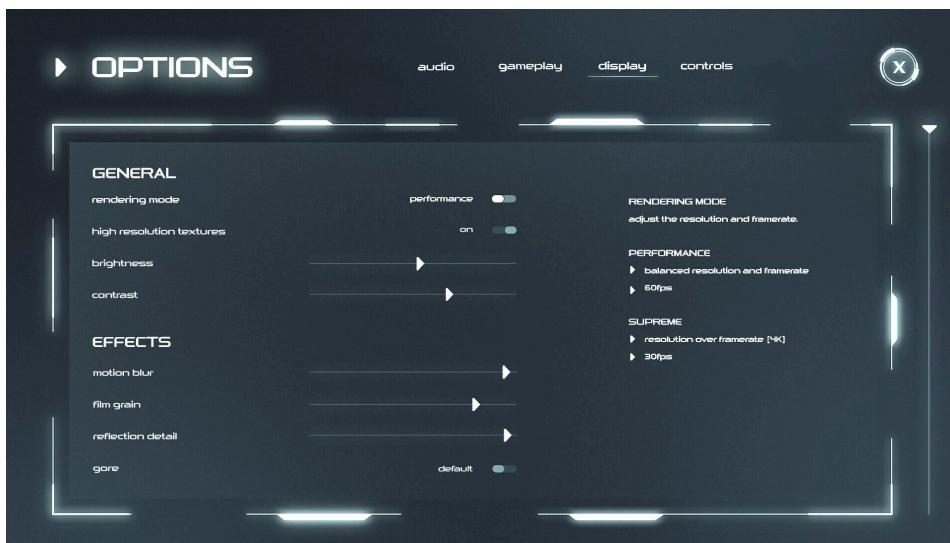
Gravitational waves hit in random directions and just like regular gravity creates fall damage, if the player doesn't act on these forces they can get "fall damage" where the falling direction is given by the gravitational wave.

A detector (available in the HUD) warns the player about the incoming wave and it is also able to give information about the type of forces applied.

Personalization

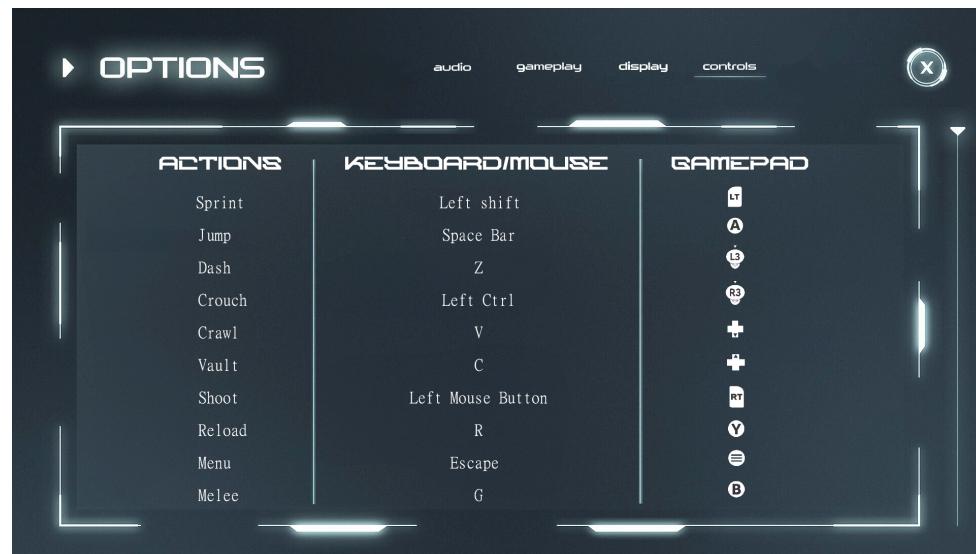
Windows 11 / Steam

Graphics

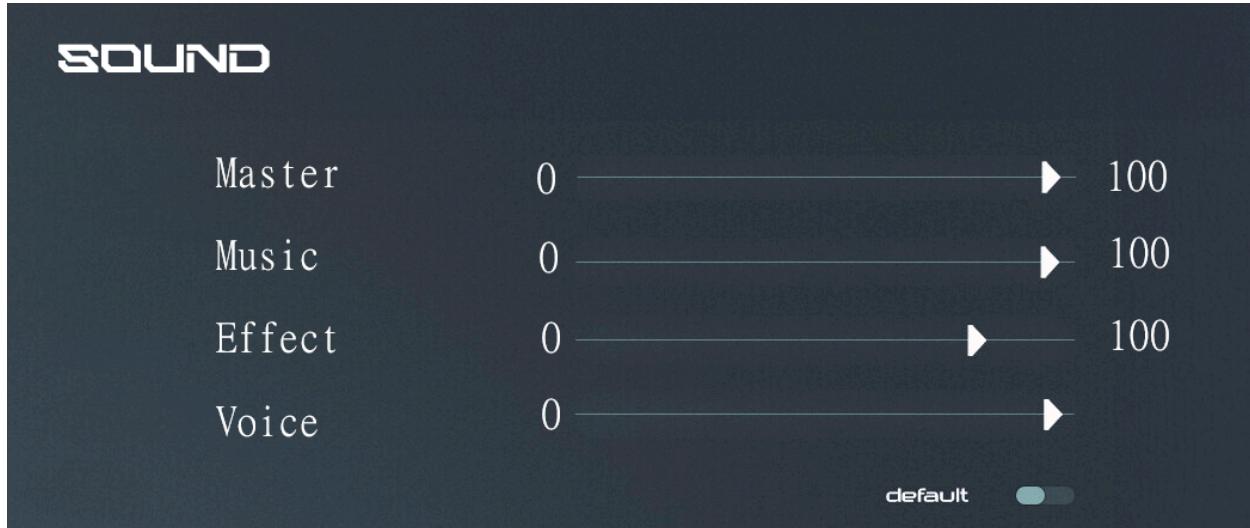


General

Controls



Sound



Licensing and IP

Licensing

The game will be developed using Unreal Engine 5 so it will be subject to Epic Games' End User License Agreement.

IP

At the moment of writing, there is no plan to use external Intellectual Properties.

GAMEPLAY FEATURES

Reward Systems

Achievements

Progressing through the story the player will be able to obtain three types of acknowledgements:

1. Mission Completion Achievements
2. Gameplay Milestones
3. Collectibles

Mission Completion Achievements

Every mission will unlock an achievement to attest the progression made through the story. These will contribute to the feeling of relief that is one goal for the player experience.

Example:

The player reaches the powerplant that generates the power fed to the AGI Agents' production plant, neutralizes the enemies defending the powerplant and deactivates the generators. As a result the player would receive the following message:
"Achievement Unlocked! Successfully deactivated the powerplant".

Gameplay Milestones

The game will keep track of how well the player executes some levels and reward them when some conditions are met.

Example:

When the player has to traverse the harsh martian atmosphere to move from one POI to another, the player is timed and if certain thresholds are met, they get an achievement: "Traversed Theseus rift in less than 5 minutes!"

Collectibles

These are items that can be found while progressing through levels. They are usually hidden and contain pieces of information that help the player understand the lore favoring immersion.

Example:

While traversing, the player spots a crashed spacecraft. They investigate and find out that the spacecraft belonged to mission *Root Zero* and they find letters from the crewmember that can be collected.

Modes of Play

Single Player Campaign

The type of experience this video game aims at is for the player to immerse themselves in the story and feel like the leader of an important mission. The player takes on the role of the captain in charge of the mission to neutralize the threat of AGI overtaking the Humans as the dominating species. For this reason, a Single Player Campaign is best suited to achieve such player experience. The campaign will have 3 levels of difficulty that will affect the strength of the AI controlling the enemies and environmental impact.

The levels are:

- Novice
- Apprentice
- Captain

Co-op Campaign

For the players that want to share the adrenaline of leading humanity through such an important mission, a Co-op game mode is available that builds up on the Single Player Campaign, where the second player takes on the role of Evelina Reya, the main assistant of Crew Alpha. The screen will be split vertically and the two players will have independent control over the characters. Rewards and Achievements will be shared between the two players' profiles.

GAME DYNAMICS

Physics and AI

Physics

Physics is an important aspect of the game. There are three environments included in the game that have different gravity values, that result in different physics:

- Earth: **1g**
- Space Stations: **0g**
- Mars: **0,38g**

One goal of the game is to be as realistic as possible, so the different environments need to be reflected on the mechanics. However, if that affects the playability of the game, the parameters will be tweaked to prioritize the targeted player experience. This will be determined when prototyping.

AI

Only AGI Agents will be controlled by AI, that will determine path, aim and battle strategy. I find this very fitting for what AGI represents in the game. The AI will be able to be tuned to match the difficulty of the game as discussed in the Modes of Play section.

Environmental Interaction

Vehicles

In parts of the game, the player will ride vehicles that will allow players to reach POIs or escape from an enemy settlement. The movement will have to be consistent with the physics of the

planet, offering a unique experience of riding vehicles in a low gravity environment.

Gravitational Waves

As described in the game mechanics section, Mars is hit by randomic gravitational waves that cause the player to feel forces that can interfere with the battle. This element of randomness contributes to making the experience somewhat different for every new try and favors replayability. The player needs to make adjustments to make up for these forces.

Object Interaction

The player will interact with objects to be able to advance through the levels. Traversing will present puzzles that need to be solved through object interaction. For instance:

- Pulling a lever to unlock a doorway
- Valves that need to be opened/closed to trigger an event

Camera Behavior

The Camera is a fairly standard 3rd person shooter camera view, with the possibility of selecting the FOV multiplier in a range from 25 to 60.



CONTROL

Configuration

Mouse/Keyboard



PlayStation 4



Xbox One



Interface



HUD

The HUD will provide the player with very important information that will guide them towards the completion of the mission:

- Health Bar - tells the player how close to the losing condition they are.
- Shield
- Selected Weapon
- Remaining Ammo
- Available Consumables
- Map

On top of this standard information, the player will also get information about:

- **Oxygen Level**
Informs the player about another possible losing condition
- **Radiation Level**
Informs the player about another possible losing condition
- **Horizontal & Vertical Velocity**
Useful when using the Rocket Belt technology
- **Gravitational Wave Super Detector**
Informs the player when a Gravitational Wave is about to hit

GAME STRUCTURE

Tutorial and Training

Goals of the Training

The player should learn how to:

1. Run, Jump, Crouch, Dash, Vault, Crawl
2. Shoot, Reload, Melee
3. Master platforming and defending with Small Scale Gravity Manipulation
4. Master the Rocket Belt Technology

Location

Mission Core Training Facility (MCTF) - Planet Earth

The selection process to become captain of a colonization mission is notoriously strenuous. Once selected, the candidates will have to periodically be tested to ensure the required level of expertise. In this training center the player will prove their control over the mechanics by passing short challenges that will both serve as part of the story as well as a tutorial. There is a twist: The MCTF is located on Earth, with 1g gravity. The purpose of the training/tutorial is to teach the player the controls, but the player needs to adapt to a new environment with new physics, making the process in itself a challenge.

Activities and Engagement

- Obstacle Course to test movement mechanics
- Shooting range with dummy AI to practice combat system
- More specific training situation to practice the use of the Small Scale Gravity Manipulation and the Rocket Belt technology

The player is required to pass the training to progress in the game. So effectively the tutorial is also the first mission of the game.

Level Design

Approach

The approach to the design of the levels will be based on two pivotal points:

- Realistic environment
- User experience

Realism will be taken into account as it is among the characterizing aspects in the concept of the video game, but whenever realism interferes with the User experience, the design of the level will need to prioritize the latter.

High-level Goal

Levels need to capture three aspects of the user experience:

- Survival
- Problem Solving
- Enticing Battles

Survival

Survival features that will be included in the levels are:

- Traversing a stretch of a level with limited amount of oxygen
- Operating in a super high radiation concentration environment that requires urgency to avoid radiation poisoning

Problem Solving

The player will have to find ways to unlock pathways to advance in the mission. The puzzles will be inherent to the design of the level (Half Life is a role-model for this). Some examples:

- Connecting electrical wires to power up malfunctioning doors using electrical missing components that can be found in the level
- Working out how to place a large scale component in between two platforms too far away from each other to be traversed with mechanics.

Enticing Battles

The AGI agents will present different challenges along with the environment. This promotes exciting sequences of action that empower the player.

Level Types

Three main categories (for some levels they overlap):

- Defend the Human settlement and minimize casualties
- Traverse from one POI to another through harsh Martian conditions
- Attack and neutralize enemy POIs to put an end to the unsupervised presence of AGI.

One very distinct goal for the video game is to represent, in the design of the level, the unpredictability of the infrastructure and decision making of AGI. AGI manifests typical AI patterns. For example, AI image generators are capable of drawing hands, but at times the hands will have an unusual number of fingers or some details that are unexplainable to mankind. Likewise, the levels set in the AGI infrastructure need to reflect this AI behavior. The goal is to throw the player in this surreal, inexplicable reality of AI and having to accomplish missions within it.

Replay Appeal

Collectibles

The game makes use of collectibles that will encourage the player to play multiple times the campaign in order to unveil all the untold stories, secrets that make part of the lore.

Gameplay Milestones

The player will feel compelled to replay levels, to improve their time/score when completing levels and to unlock and complete Gameplay Milestones.

Accessibility

Motor (Control / Mobility)

- Allow controls to be remapped / reconfigured
- Options to change sensitivity of controls

Hearing

- Provides subtitles for all important speech
- Provides separate volume controls or for effects, speech, background, and music

General

- Provides details of accessibility features on website and on the store-page
- Provides details of accessibility features in-game
- Ensures that all settings are saved/remembered

Longevity

Streaming

While the game is best experienced on your own, the game can also be entertaining to watch. For instance, seeing how your favorite streamer approaches a new level, how they figure out how to solve a puzzle in the game can provide some streaming value. Another interesting aspect that has potential is the speedrunning community. Some levels can be material for

competition on who solves them the fastest, providing an extra outlet for entertainment.

Target Audience

To narrow down the target audience I performed the Lookalike-Audience Analysis. I selected three “competing” titles and analyzed their audience data, Mass Effect, Half Life, Halo. The following table sums the results up:

	Age	Lifestyle	Location	Gender Id.	Player Type
Mass Effect	18-24 (55%)	Hardcore	North America (59%)	Male (79%)	Explorers
Half Life	18-24	Hardcore	Russia	Male(91%)	Killers
Halo	18-24	Hardcore	North America	Male	Killers

Based on this, we can deduce that the predicted Target Audience will be:

- **Age:** 18-24
- **Lifestyle:** Hardcore
- **Location:** North America
- **Player-Type:** Killers
- **Gender Identity:** Male

This study will be at base of the Marketing Strategy

Community Engagement

This game is intended to be a solo experience, so there's not much room for Community Engagement, but opening channels of communications so that people can brainstorm and theorize

about the lore of the game can be valuable. It also sets the perfect environment for a sequel/prequel.

Saving System

In-Game

Saving will be a feature of the game. In the story, you get to save your progress if you are able to relay the mission status to the ground control on Earth. This makes saving a resource in the game, as well as adding one element of realism.

Main Menu

The player will be able to resume their progress through the Main Menu.

MULTIPLAYER

The game is suitable for Multiplayer game modes. For example, these can be introduced in the title:

:

- Team Deathmatch
- Capture the Flag
- Free for All
- Domination
- Battle Royale

Where the player chooses to side with/represent the AGI agents or Humans.

NETWORK

Network Features

PlayStation Plus & Game Pass

The game will be available in the PlayStation Plus and Game Pass program. These would enhance the reachability of the product boosting interactions (sales, feedback, ideas..), contributing to the growth of the title.

Commerce

Exploring the Multiplayer game modes opens up the possibility of introducing Microtransactions in the system. The selling product would be cosmetics for the game. With this, also a Battle Pass instance can be introduced.

Downloadable Content

Potential Expansions

The title works best as a standalone finished product. However, there are two parts of the story that can make up for additional concepts for prequel games:

- The survival of *Darius Watson*, with *Maiden* and *Primal* on Mars.
- The race for the first self-sustaining settlement on the Moon