

The background of the cover is a surreal, low-poly landscape. It features large, glowing mushrooms with textured caps in shades of purple, blue, and white. The terrain is composed of light-colored, angular rock formations and patches of dark, reflective material. The overall lighting is dark and atmospheric, with the mushrooms providing the primary light source.

GAME DESIGN DOCUMENT

APOPHIS

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Game Analysis

The game is about exploring a wonderfully designed world and experiencing an exciting and interactive story. The player must find their own way through the world and overcome obstacles in new ways. The focus on VR plays an important role here, to offer an immersive experience, and to experience a new kind of adventure. The focus of the game is exploring and interacting with this fantastic world, which the player can experience at their own pace and in their own way.

Mission Statement

In Apophis you can enjoy a new kind of VR experience. Explore, collect, restore and progress through a hostile, fractured world to uncover the truth about your lost friend's whereabouts.

Genre

Adventure; Exploration; Story-Rich

Platforms


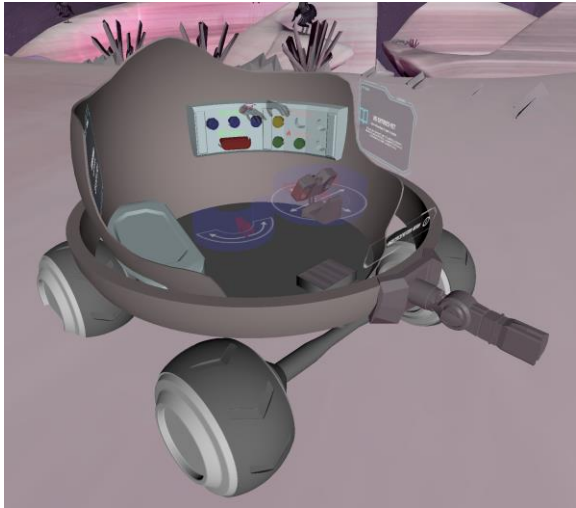
The game targets the Meta Quest 3 VR headset (standalone).


Target Audience

Our core target audience are casual (VR) gamers, which means we aim to have a clear focus on simple/intuitive gameplay and a visually coherent overall world. Another aim is to bring the topic of VR games closer to new players, but also to inspire people who already have experience with this topic.

Storyline & Characters

The aim is to tell our story through two main features: an off-screen antagonist and the game world itself. On the one hand, the antagonist should give context to the individual objects in the game world and, on the other hand, comment on what the player has just done. For example, when the player solves a puzzle, the antagonist will briefly comment on this. The second main storytelling feature, the game world, is designed in a way that it tells its own story, for example by showing some ancient ruins with symbols that tell some kind of story.

Character	Description	Characteristics
<div>The Core</div> <div></div>	NPC, all-knowing “narrator”	Main Antagonist, Narrator, Mischievous
<div>Player / Vehicle</div> <div></div>	First person, tethered to their vehicle	Protagonist, Scientist

<p>Bird People</p> 	<p>NPC, Enemy, looming threat</p>	<p>Enemy; usually shy and defensive; can be aggressive when threatened</p>
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Gameplay

Overview of Gameplay

The gameplay consists of three major features:

- **Exploration:** The player will explore a vast and interesting world, consisting of four areas.
- **Obstacles:** The player must navigate through obstacles at some points of their journey to make progress.
- **Resources:** The player can destroy parts of the world while exploring. This grants the player access to new areas and provides them with resources. Resources can be used to replicate objects found in the world. To replicate them, their corresponding *blueprints* have first to be found in the game world.

The game aims to combine 3 genres: **exploration**, **adventure** and **story-driven** (aka *Walking Simulator*). The main difference between other games is the use of the Virtual Reality technology, which offers the possibility of an even more immersive experience and innovative movement and interaction methods. To concentrate on the main goals (story and immersive world), the game is single player only.

Player Experience

You start the game with an interactive main menu room. There, you can look at your vehicle, which you use to move around the world. Next, you get moved to the calibration phase, which lets you calibrate your vehicle controls, allowing for ergonomic control of your vessel. Once the calibration has been completed, you are teleported into the world, which consists of one open world map that you are going to explore further as you progress through the game.

You will have one main objective to achieve, but you will find that the road there has a few surprises in store for you. Those will mainly be in the form of small obstacles that need to be overcome so you can advance further. Throughout your journey, you are going to experience the world and unlock more ways to interact with it.

Gameplay Guidelines

The game must always focus on smooth performance to ensure that players do not suffer from motion sickness. Furthermore, the game must run standalone on the Meta Quest 3. Apart from that, no further constraints are in place for the development of the game.

Game Objectives & Rewards

The motivational aspect stands on two main pillars. First, the story should capture the player and motivate them to continue playing. The aim is to make the player want to find out how the story continues or ends. The second important point is the game world, that is designed in such a way that it arouses the player's curiosity and thus also encourages them to continue playing.

The main objective of the game is to progress through the world. The player is rewarded with resources that are collected by destroying specific objects in the world. Furthermore, the player unlocks or finds logs, which reveal information about the world and what happened to the player's lost friend.

The player is hindered by obstacles that need to be overcome to progress through the world. Wasting the collected resources forces the player to seek out new means of getting resources to keep being able to replicate objects.

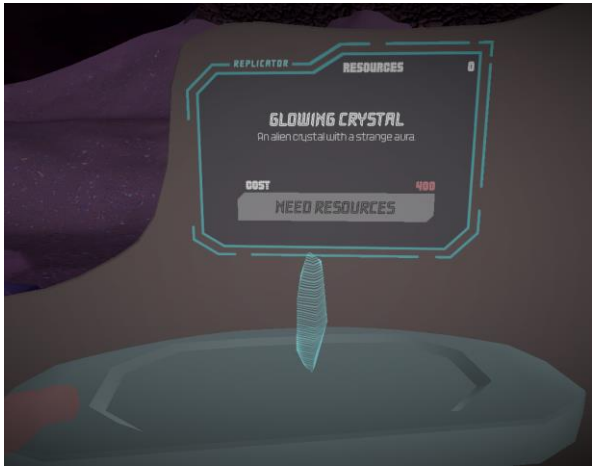
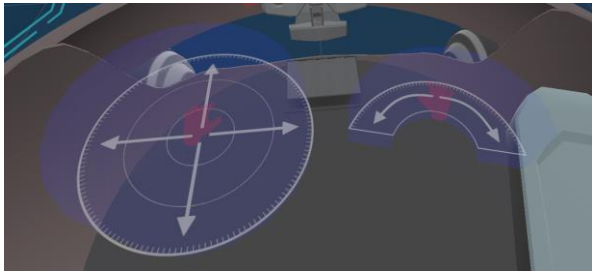

Overall, the game only has one difficulty level. However, figuring out how to overcome some of the obstacles depends on the player's problem-solving skills, as well as their experience with VR.




Gameplay Mechanics

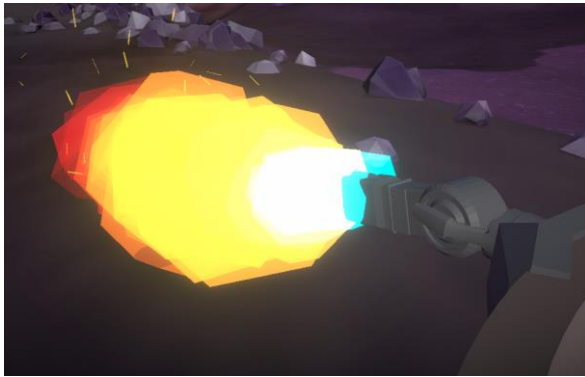
The core gameplay mechanics are the exploration of the world, the interaction with objects in this world, the gathering of resources and turning them into new objects, and the combat against different foes. The latter two are used to advance in the game by overcoming obstacles, that get more and more challenging.

Character Attributes	
Character	Movement Abilities / Actions Available
Player	Drive, harvest, scan, replicate All actions are performed through hand/head tracking and body movement
Game Modes	
Single Player; no difficulty modes	The player must overcome obstacles and collect resources to advance in the game. The obstacles are different in the four hubs and different abilities are needed to overcome all of them.
Resource System	
Mechanic	Description & Objectives
Harvesting	While exploring, players can discover special objects that can be harvested with the vehicle's laser gun. By doing this, players can gather resources that can later be used for creating / replicating key items. This process destroys the object in question, also opening up new paths through the world.
Scanning	Like harvestable resources, players may find special objects that can be scanned and added to their item database. Items in the database resemble blueprints that are required for replicating actual objects. Replicating an item costs a certain number of resources, which are acquired with the harvesting mechanic.





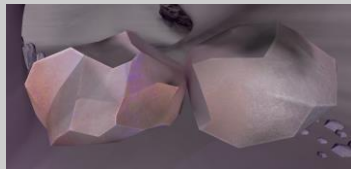
<div>Replicating</div> <div></div>		Having acquired blueprints and sufficient resources, players can replicate key items. These items are usually required to advance at certain story points and serve as the main way to progress through the world.
<div>Movement & Interactions</div>		
<div>Mechanic</div>		<div>Description & Objectives</div>
<div>Movement (Vehicle)</div> <div></div>		The player can use two control elements inside their vehicle to move inside the world. Their positions are calibrated to fit the players preferences at the beginning of the game. One control element is for moving horizontally in any direction. The other element is for turning the vehicle. The controls are similar to a traditional controller with two joysticks.
<div>Interaction with objects</div>		The Player can grab and interact with objects inside the vehicle. Objects can be collected using the vehicle's gravity gun. Certain objects can be placed back into the world through the item teleporter.
<div>Vehicle Subsystems</div> <div></div>		To use the various gun modes, the corresponding subsystems need to be activated. Each subsystem requires three modules.

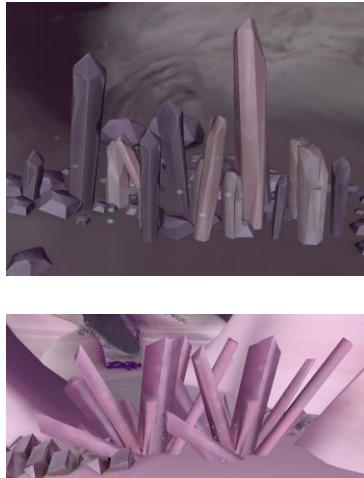

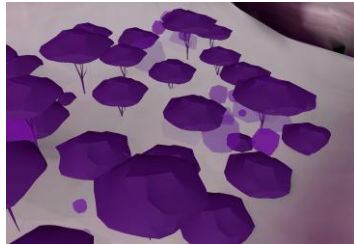
<div><div>Tutorials</div><div></div></div>		<p>To aid the player with learning new mechanics, tutorials are displayed when the player first encounters a new mechanic.</p>
<div>Gun</div>		
<div><div>Mode</div><div>Gravity</div><div></div></div>		<div><div>Description & Objectives</div><p>The gravity mode can be used to grab objects lying around the world from inside the vehicle. This is accomplished by targeting an object and activating the gun, “sucking in” the object towards the vehicle. It can also be used to move heavy objects around, unblocking certain paths. This mode is available from the start.</p></div>
<div><div>Laser</div><div></div></div>		<div><p>In some parts of the game the player is required to use the laser mode. This mode can be used either to fight against hostile characters in the world or to harvest resources from the environment by destroying certain objects. It is unlocked by bringing the laser subsystem back online.</p></div>

Flame

Like the laser mode, but used on short distances against organic matter, like toxic mushrooms, which block the way.

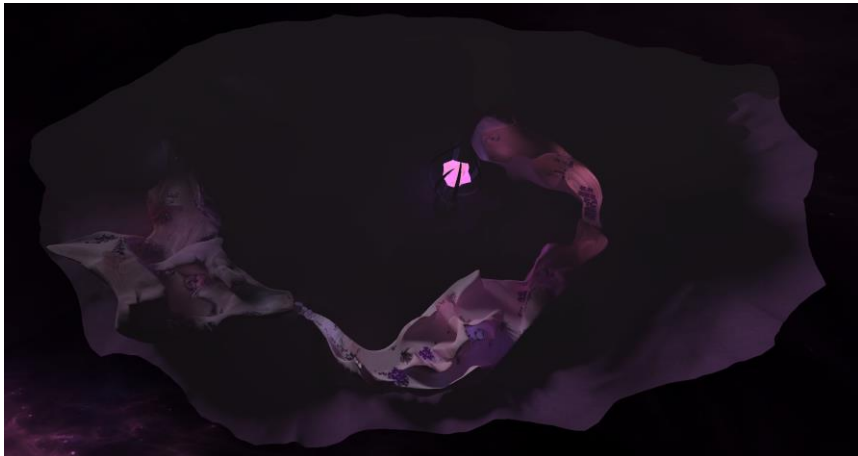

Items

Item	Name	Description	Interaction
	Scannable crystal	Crystal that can be scanned and later replicated, needed later for building bridges	Scan, replicate
	Vehicle module	Needed for operating various aspects ("subsystems") of the vehicle	Grab using gravity mode of the gun, insert into correct slot inside vehicle using hands
	Stones	Heavy stones, which can only be moved using the gravity gun	Move using gravity mode of the gun

	<p>Destroyable crystals</p>	<p>Crystal walls that block the way. These can be destroyed using the laser gun, unblocking the path and yielding the player valuable resources, needed for replicating objects</p>	<p>Aim laser gun at wall and wait until the wall starts heating up and shatters</p>
	<p>Crystal socket</p>	<p>A socket where crystals can be inserted. Once inserted, mushrooms appear nearby, creating a new path</p>	<p>Drive up to the socket and the item inserter appears. Place the crystal from inside the vehicle into the inserter, which teleports it into the socket</p>
	<p>Toxic mushrooms</p>	<p>Toxic mushrooms on the floor which damage the player when driven through. Need to be burned</p>	<p>Can be burned using the flame thrower</p>

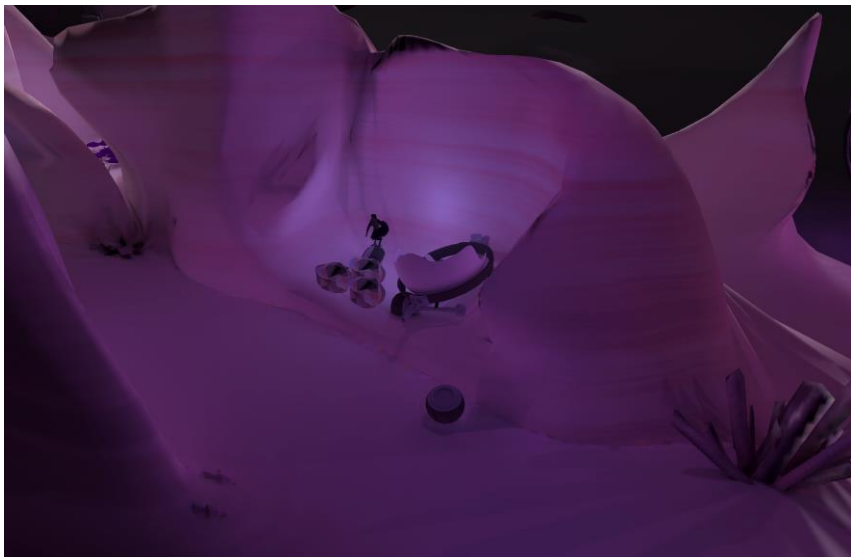
Level Design

The game consists of four *areas*. To move on to the next area, the player must overcome different obstacles and evolve their vehicle. The look of each area will be a little bit different, but they will have certain things in common, as the areas still represent a single unit. With each area, the danger increases, as does the pace and looming threat via NPCs. The goal of each area is to leave it in order to go onto the next, but there are also hints and other secrets to be discovered.

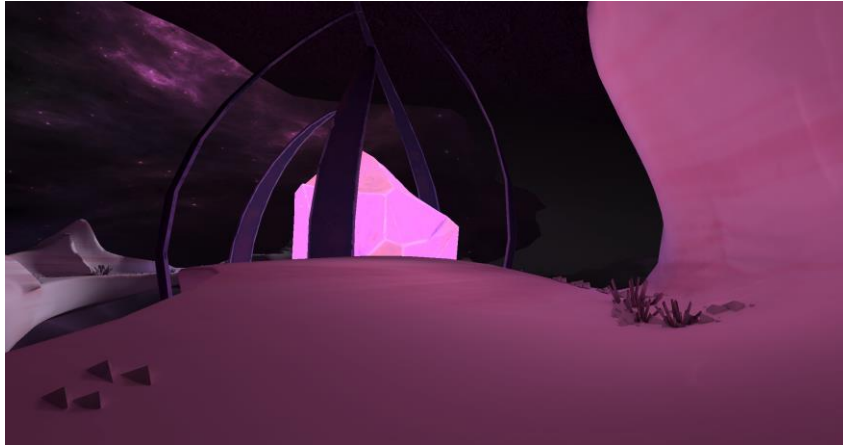
Levels	Description
Overview of entire game world 	Fractured wasteland, covered by iridescent crystals and fungi; special crystals can be discovered and harvested for resources
Area 1 	First impression of the world and its surroundings, introduction to base mechanics (scanning, gravity gun). Gameplay focuses on using the gravity gun for collecting and manipulating objects. Some parts cannot be accessed yet. At the very beginning a strange glowing crystal can be scanned.

Area 2

The last missing module for the laser gun is found and collected, unlocking this new mechanic. The player can directly harvest resources and unblock the path onwards using the laser. Back in the first area, a new section can be unlocked by destroying a wall. The collected resources are used to replicate the scanned crystal. This replica can be inserted into a strange socket, revealing a bridge over to area 3.

Area 3

Using the two available gun modes, the player progresses towards a smoke column. Once there, they find the wrecked spaceship of their lost friend. Among the destroyed parts is a module – the last missing module of the flame gun. After picking it up, the player has fully restored the functionality of their vehicle. Using the flame mode, the player can now access the remaining sections of area 3, as well as progress to the last area, by destroying toxic mushrooms on the floor. At the end, another bridge appears after inserting another replicated crystal.

Area 4

In the last area, the player must combine everything they have learned so far and face the core, which sits at the center of this world. Once the player reached the core, they must fight its aggressive allies (native bird people) whilst being stuck, trying to survive until the vehicle's system has finished rebooting. Defeating all enemy waves and being able to move again, the player moves the final meters towards the core, before being sucked into a portal that just opened, ending the game.

Control Scheme

The game is using hand tracking to interact with the world:

Button/ Touch Input	Performed Action
Hand movement and pinching	Controlling objects in game (grabbing an object, or interacting with the controls of the vehicle)
Head movement	Camera rotation

Game Aesthetics & User Interface

Apophis is a desolate, alien world suspended in the void of space, characterized by its vast, flowing terrain sculpted into surreal, organic forms. The landscape is a labyrinth of smooth, undulating surfaces and jagged peaks, resembling windswept dunes or the skeletal remains of some ancient, colossal entity. These formations are illuminated by a faint purple glow that permeates the atmosphere, casting an eerie, ethereal light across the terrain. Scattered across Apophis are clusters of shimmering crystalline structures, their reflective surfaces contrasting with the soft, muted tones of the environment. These enigmatic formations hint at a mineral-rich ecosystem, or perhaps remnants of some long-lost civilization. The central feature of Apophis is a glowing monolithic structure, "The Core", emitting a pulsating violet light. This mysterious artifact dominates the barren expanse, suggesting its importance as a source of energy or a relic of ancient power.

The world of Apophis feels otherworldly and isolated, shrouded in mystery and steeped in an atmosphere of foreboding. Its dark skies and faint nebula-like backdrops suggest its existence in a distant or alternate dimension, far removed from the familiarity of Earth. Life here is scarce, though the terrain's organic contours and crystalline outgrowths create a sense of latent energy, as if the planet itself is alive. Apophis is a place that invites exploration, but with an ever-present sense of danger, its haunting beauty hiding secrets both wondrous and perilous.



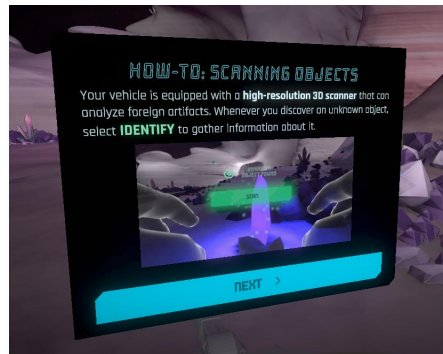
The central core of this world, looming in the distance

The user interface is placed entirely inside the player's vehicle, serving as a head-up-display (HUD). It serves mostly as a non-interactive informational UI, showing log entries, the replicator database, as well as the vehicle module's statuses. Some parts are interactable using UI buttons.



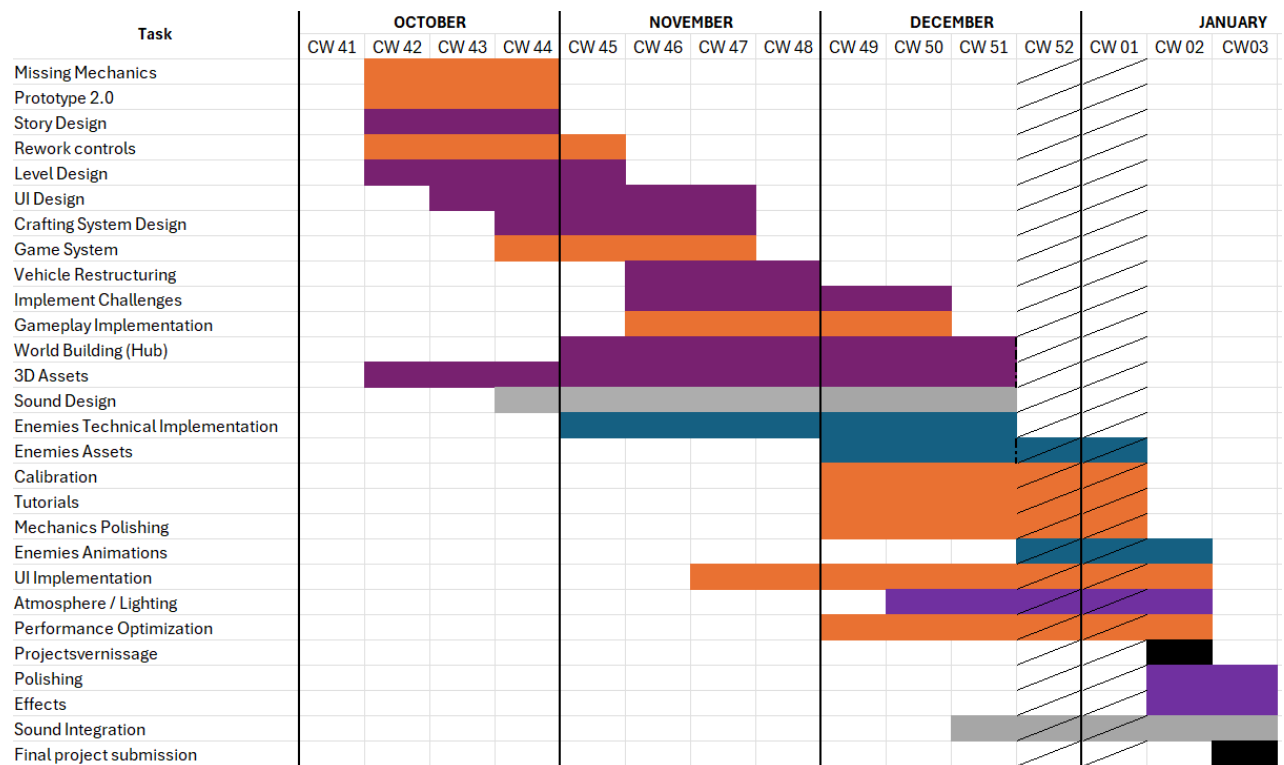
The collapsible logbook on the left and the replicator controls on the right

Most of the UI panels are placed to the side or behind the player, as to not block the view out the front of the vehicle. Panels pop up at the front of the vehicle during important moments. To avoid the player not seeing where they drive, the movement is disabled while these panels are visible. One such example is the tutorial screen.



Two examples of interactable UIs (scanning on the left, tutorial screen on the right)

Schedule & Tasks



Team members & Roles

This game was created as part of the master class *Augmented & Virtual Reality*, in the study program *Interactive Technologies* at St. Pölten UAS during the summer and winter semester of 2024.



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