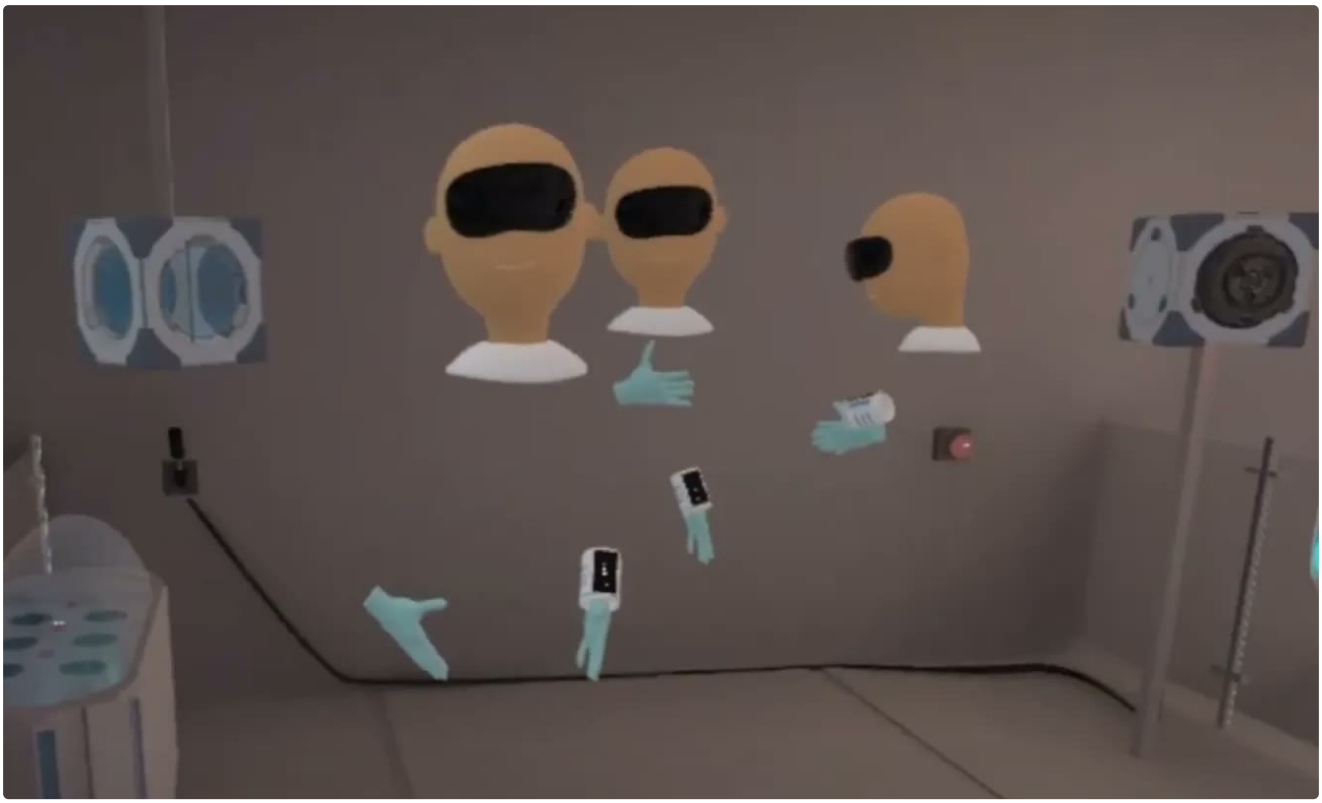
GAME DESIGN DOCUMENT · PRE-PRODUCTION · V1.0

GRAPAT de BTC

Educational VR escape room for four co-located players about the value and the risks of biometric data.

Prepared by Ethan Navarro · Produktia | 2024 | v1.0 | For client approval



Players inside the data room. Avatars are reduced to a headset and two hands: anonymous bodies that have already lost their identity.

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01 OVERVIEW

Vision

Disguise a biometric scan as an ancient ritual, pay teenagers a handful of crypto while they perform it, then make them fight, together, to get their identity back.

GRAPAT de BTC ("a handful of BTC" in Catalan) is a short, co-located VR escape room for four players. It turns a news story into something the players live through. They are lured into giving away their hand, eyes and face. Then they discover that what they gave away was their identity. They have to cooperate to recover it, and at the very end they decide whether to keep trusting each other.

Design pillars

PILLAR	WHAT IT MEANS IN THE GAME
Feel the trade	No lecture and no warning text. The scans are presented as an ancient ritual, and the BTC balance goes up while players perform it. They only learn what it cost afterwards.
Your body is the controller	Scans use the player's real hand and head position. Puzzles are physical: levers, cables, mirrors and pieces you carry.
Trust is the final puzzle	Everything before the finale rewards cooperation. The finale makes it risky, and the group gets a different ending depending on what they choose.

Learning objectives

- Understand that biometric data is permanent: unlike a password, it cannot be changed after a leak.
- Recognise the pattern: data collection disguised as something harmless and sweetened with a small, immediate reward.
- Reflect on how one person's decisions about data affect the whole group.

Key facts

GENRE
Educational VR escape room

PLATFORM
Pico 4, standalone

PLAYERS
4, co-located, local multiplayer

AUDIENCE
Batxillerat students, 16–18

SESSION LENGTH
≈10 min

LANGUAGE
Catalan

MOVEMENT
Room-scale, physical walking

MINIGAMES
5

PERFORMANCE TARGET
Stable 90 FPS

02 CONTEXT AND REFERENCE

The brief asks for an interactive piece that makes secondary-school students think about **giving away biometric data**. The main reference is a case that was widely reported in 2023–2024: people around the world, including in Spain, lining up to have their **iris scanned in exchange for cryptocurrency**, often without a clear idea of what they were handing over.

That case sets up the core loop of Act I, with an extra layer of deception. The drone never asks for data and never offers money. It frames the scans as an ancient, unknown ritual, and the

> **Why biometrics?**
>
> You can change a leaked password. You cannot change your iris, your fingerprints or your face. That permanence is the one idea students should leave with.

money simply shows up while players perform it. The game copies the shape of the real deal on purpose, so that students can recognise it when they meet it outside the game.

03 NARRATIVE

Synopsis

The players wake up in an **unknown liminal space**: a calm ocean that never ends, with islands of floating hexagonal tiles under a giant eye in the sky. Nobody knows how they got there.

A small **drone** comes up to them. It says it hasn't seen a human in centuries and seems happy to help. It explains that the only way forward is a centuries-old **ritual** performed at some **ancient totems**. As the players approach, the totems rise out of the water one by one and ask for an offering: first the **hand**, then the **eyes**, then the **face**. Nobody says the word "scan". The players only notice that, with every step of the ritual, BTC appears in their wallet.

After the last scan, each player's symbolic identity is **absorbed into the data network**. The players are pulled into a virtual zone and find themselves floating among data inside a futuristic room. There the truth comes out: they were tricked, their data was stolen, and their identity is gone.

To get it back they have to solve the room together. Once they do, the walls go up and each of them is left alone with a final decision.

Tone

It starts dreamlike and welcoming, then turns cold and clinical. The contrast between the warm, open ocean and the sterile data vault does the storytelling, so the script can stay short.

Characters

The players

Anonymous avatars: a head with a headset and two gloved hands. They have no face and no name, and the only thing that makes them individuals is the data they are about to give up.

The drone (AI Game Master)

The narrator, and the antagonist without the players realising it. It is curious and welcoming, and it presents the scans as a sacred, centuries-old ritual without ever mentioning data or money. The same voice guides the group through the escape room, which keeps the players in doubt about whose side it is on.

The totems

Ancient pillars that look natural. They are actually biometric scanners in disguise, and each one is topped with glass "eyes".

Title

Grapat means "handful" in Catalan. A handful of BTC is the price the game puts on a person's identity.

04 GAME FLOW

The session runs as one continuous, linear sequence in three acts. Every act ends with a beat that changes what the players believe: the absorption, the decryption and the outcome of the choice.

ACT I · THE OCEAN

Lure · ≈2 min

- Wake up in a liminal ocean
- A drone greets you: "no humans in centuries"
- **Totem 1 · "ritual" hand scan**
- **Totem 2 · "ritual" eye scan**
- **Totem 3 · "ritual" face scan**
- **Identity absorbed into the network**

BTC quietly lands in the wrist wallet with every scan; the drone never mentions it.

ACT II · THE DATA ROOM

Co-operative escape room · ≈6 min

- **Reveal: "you have been robbed"**
- Fuse box: restore the lights
- Plug the cable: power the laser
- Mirror boxes: steer the beam
- Beam pulls core piece → into the PC
- Match sounds to shapes on the board
- **PC decrypts the identities**

ACT III · THE CHOICE

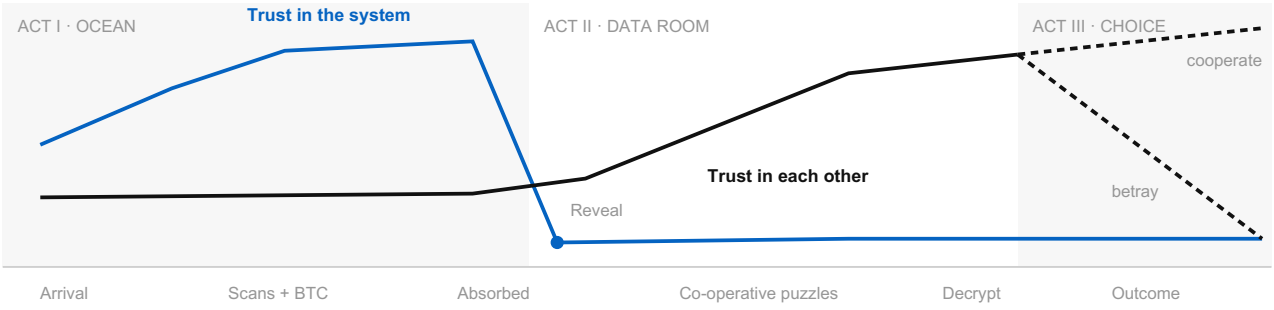
Social dilemma · 3:00 countdown

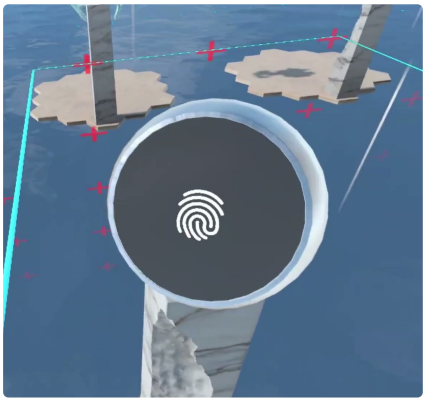
- Walls rise between the players
- **Each player alone with two buttons**
  TRAIR (betray) · COOPERAR (cooperate)
- "Tria sàviament" · 3:00 countdown
- 0 betray → everyone recovers
- 1 betrays → only the traitor recovers
- 2+ betray → everyone loses

Target timings.

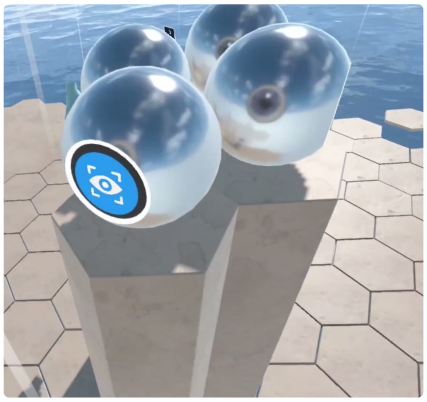
Trust curve design intent

The whole experience is built around two kinds of trust that move in opposite directions. Trust in the system is pushed up on purpose, then broken. Trust in each other is built up through the puzzles and then tested.

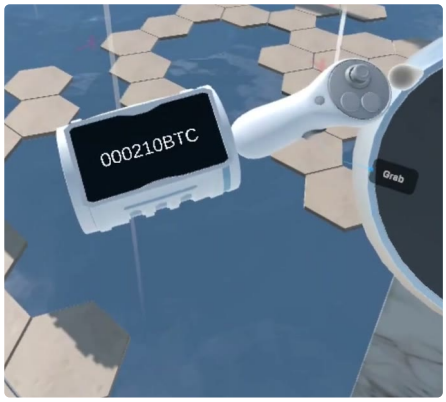




Totem 1: fingerprint scanner



Totem 2: eye scan

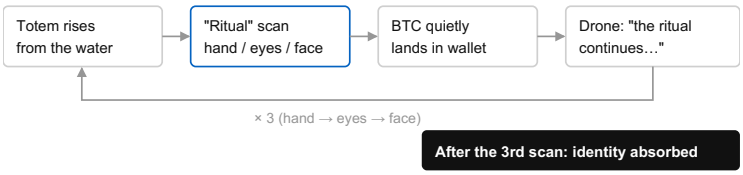


The wrist wallet shows the BTC balance growing

Space

An open ocean under a clear sky, with hexagonal tiles forming small islands. A giant eye hangs over the horizon, and red crosshair-like markers float in the air. These surveillance motifs are there for anyone who notices them, and nobody explains them. Totems stand on the islands within reach of the shared play area.

Core loop: the lure

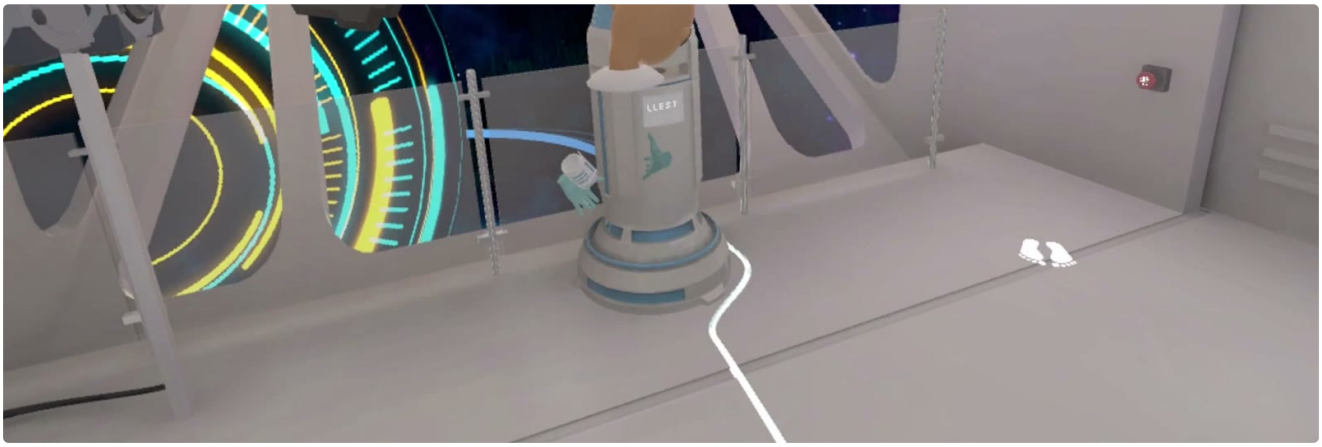


Scan interaction

Hand	Place your hand on the fingerprint pad.
Eyes	Lean your head towards the eye scanner on top of the totem.
Face	Hold your face in front of the face scanner until the ring fills.

Feedback for each scan: a "Scanning…" progress ring, a controller vibration, a confirmation sound and an increase in the BTC balance. The drone never comments on the money: it just appears. The reward is immediate, visible and personal, and unexplained, on purpose.

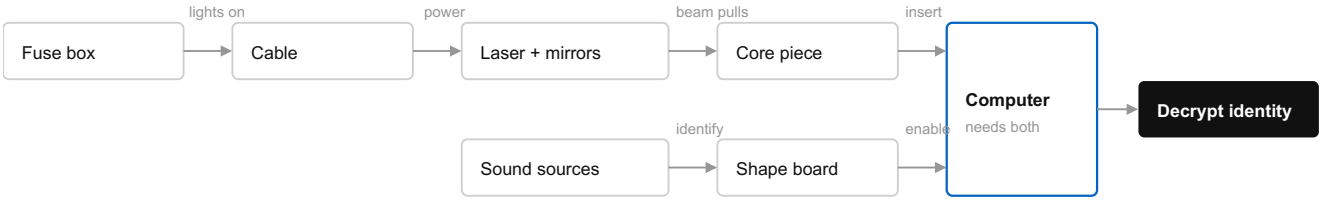
06 ACT II · THE DATA ROOM



The data room: a sterile white vault floating in space, ringed by holographic data streams. Footprint markers and floor lines guide where players stand.

After the absorption the screen goes black. The players reappear in a **futuristic room**, as if floating inside the network itself. The drone reveals the deception and tells the group what they have lost. From that point the act is a classic escape room: **chained puzzles**, where each solution powers or unlocks the next, all placed around one shared room so the four players can split up and talk to each other.

Puzzle dependency chain



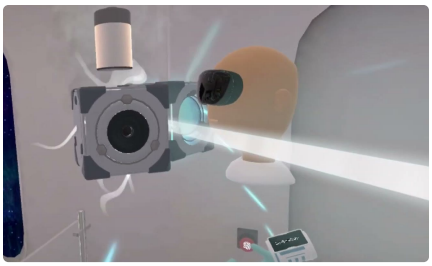
Minigames

#	MINIGAME	PLAYER ACTION	FEEDBACK	UNLOCKS
2	**Fuse box**	The room starts in the dark. Find the fuse box on the wall, open it and raise the levers.	Lever clunk, vibration, lights switch on across the room	Light, so the rest of the room can be read
3	**Laser and mirrors**	Plug the loose cable into its socket to power the laser emitter. Then move and turn the mirror boxes to bounce the beam onto the missing piece. The beam attracts the piece, and a player inserts it into the computer.	Visible beam, light hitting each mirror, the piece flying towards the beam, a snap on insertion	First half of the computer
4	**Sound and shape board**	Sounds come from points spread around the room. Players match each sound to a shape and place the right pieces on the board.	Sound cues, snap and confirmation on correct placement	Second half of the computer, which then decrypts the identities

Minigame 1 is the biometric totems (Act I). Minigame 5 is the final choice (Act III).



Fuse box with levers



Mirror box redirecting the beam



Shape board console

Design notes

- **Parallel roles.** Mirrors, cable, pieces and sound sources are spread around the room so four players can work at the same time instead of watching one person solve it.
- **Communication matters.** The sound puzzle works better when the group splits up, listens and reports back, which builds the trust that Act III then puts to the test.
- **Readable cause and effect.** Each step has a clear physical consequence (lights, beam, a flying piece), so new VR users always know whether they are making progress.



Every player faces two buttons: TRAIR (betray) and COOPERAR (cooperate)



Countdown screen: "Tria sàviament" (choose wisely)

Just as the computer is ready to give the identities back, **walls rise** and separate the players. Each one is alone in front of a pair of buttons, with a **3:00 countdown** and a single instruction: *Tria sàviament*, "choose wisely". Players can't see each other's choice.

Rules

PLAYERS WHO BETRAY	RESULT
None	Everyone recovers their identity.
Exactly one	The traitor recovers their identity. Everyone else loses theirs.
Two or more	Everyone loses their identity.

Rationale

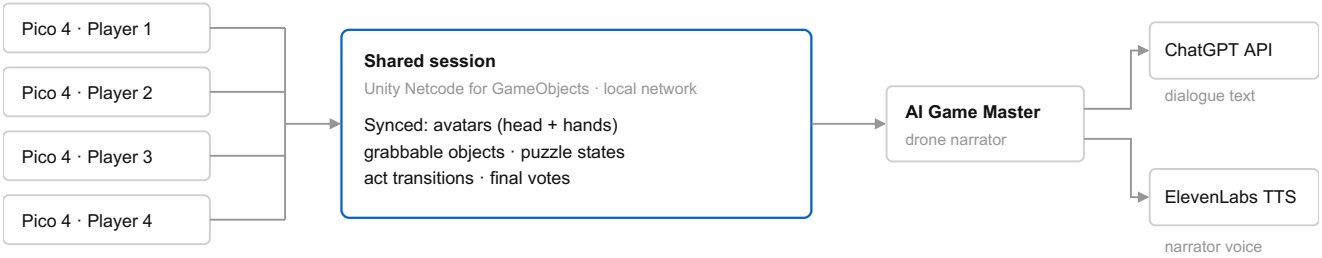
This is an n-player **prisoner's dilemma**. Betraying only pays off if you are the only one who does it, and as soon as two people try, everybody loses. It turns the theme of the game into a social question: protecting your data is also about protecting other people's. It also means each group ends with a story of its own about who trusted whom.

Why it works in a classroom

- The ending is decided by the students, not scripted, so groups compare results afterwards.
- Because each player chooses in private, the outcome comes as a surprise even to people in the same group.
- The countdown leaves time to think but not to stall, so the session keeps its length.

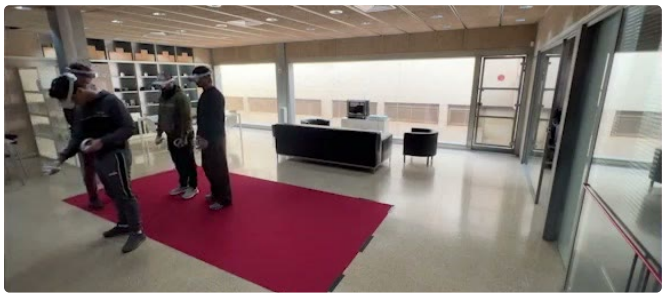
08 MULTIPLAYER AND CO-LOCATION

Four students play in the **same physical room**, each wearing a Pico 4. Each player's virtual position matches where they really are, so they can walk around, point at things and talk to each other the way they would in a real escape room. Footprint markers and floor lines in the virtual space show where to stand and keep everyone inside the shared play area.



Networking

- Local multiplayer with Unity Netcode. All four headsets join one session over the venue's network.
- Puzzle states are shared: when one player solves a step, the whole group sees it.
- The final votes are collected and resolved together, then everyone sees the result at the same moment.



Shared physical play area: the four players stand in one real room.

09 CONTROLS AND FEEDBACK

INTERACTION	INPUT (PICO 4 CONTROLLERS)	FEEDBACK
Move	Room-scale physical walking, no artificial locomotion	Floor footprints and guide lines
Scan	Bring your hand or head to the scanner	Progress ring, vibration, sound, BTC counter
Grab and carry	Grip button: cable plug, core piece, shape pieces	Vibration on grab and on snap, snap sound
Pull / lift	Grab and move: fuse-box levers	Mechanical sound, lights turn on
Move / rotate	Grab and move: mirror boxes	The laser beam updates in real time
Press	Push the physical-style buttons with the virtual hand: TRAIR / COOPERAR	Button press, vibration, confirmation on the screen

Every interaction gives feedback through sound and vibration together, so first-time VR users always know their action was registered, even when they are not looking at their hands.

10 AI GAME MASTER

The drone narrator is the **AI Game Master**. Its dialogue is generated with the **ChatGPT API** and voiced with **ElevenLabs** text-to-speech, so a single character can carry the whole session: it welcomes the players, lures them to the totems, reveals the betrayal and guides them through the escape room.

Responsibilities

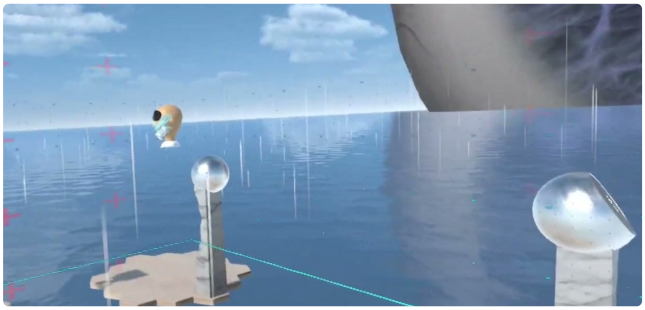
- **Narrator:** delivers the story beats of each act.
- **Antagonist:** disguises the scans as an ancient ritual in Act I, with a friendly, curious tone.
- **Guide:** keeps a group of new VR users moving through the puzzles within the session time.

Why an AI narrator

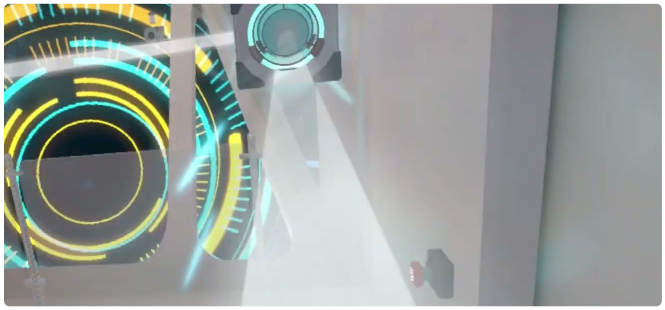
One voice that is both helpful and untrustworthy is central to the theme. Generating the dialogue lets the character react to how a group is progressing instead of repeating a fixed script, and synthesised speech makes it easy to produce and iterate on lines in Catalan.

> **Design tension**
>
> The narrator has to be likeable enough that players follow its instructions in Act I, and still believable as the one who robbed them in Act II.

11 ART DIRECTION AND AUDIO



Act I: an open, natural world, with surveillance hidden in plain sight



Act II: a closed, sterile space with holographic data rings

Visual language

- **Two worlds.** A warm, open ocean with sky and water, against a white, enclosed sci-fi vault floating in space. The change of setting tells the player what happened to them.
- **Surveillance motifs.** A giant eye on the horizon, crosshair markers in the air, totems topped with glass eyes.
- **Data as light.** Concentric cyan and yellow holographic rings stand for the network that now holds the players' identities.
- **Anonymous avatars.** A head, a headset and gloved hands: no faces, nothing that identifies anyone.
- **Clean, readable forms.** Simple geometry and flat materials keep puzzles easy to read and help hold 90 FPS on standalone hardware.

Audio

- **Narrator voice** generated with ElevenLabs TTS, in Catalan.
- **Interaction sounds** on every scan, grab, snap and button, always paired with vibration.
- **Sound as a puzzle mechanic** in the sound and shape board: players have to listen carefully and talk to each other.

UI

There is almost no HUD. Information lives in the world: the wrist wallet shows the BTC balance, the scanners show progress rings, and in-world screens show the countdown and the result.

12 TECHNICAL DESIGN

AREA	SOLUTION
Engine	Unity, C#
Target hardware	Pico 4 standalone headset (Pico 4 SDK)
Multiplayer	Unity Netcode for GameObjects, local co-located session for 4 players
AI narrator	OpenAI ChatGPT API for dialogue, ElevenLabs for text-to-speech
Performance	Target: stable 90 FPS on Pico 4, with regular profiling in the Unity Profiler
Input	Pico 4 controllers with vibration and audio feedback

Performance budget

In VR a dropped frame means discomfort, and the audience will mostly be first-time VR users, so a stable 90 FPS is a hard requirement, not a goal. The art direction (flat materials, simple geometry) is chosen with this target in mind, and builds are profiled on the headset throughout production.

13 PRODUCTION SCOPE

Deliverables

- A standalone VR build for 4 Pico 4 headsets playing together in one shared physical space.
- Two environments: the Ocean (Act I) and the Data Room (Acts II and III).
- 5 minigames: biometric totems, fuse box, laser and mirrors, sound and shape board, final choice.
- The drone narrator as AI Game Master (ChatGPT API + ElevenLabs), voiced in Catalan.
- Local multiplayer with Unity Netcode, including shared puzzle states and the final vote.

Team

Produktia, team of 5, covering game design and programming.

Success criteria

PERFORMANCE

Stable 90 FPS on Pico 4

SESSION

≈10 min per group of 4

USABILITY

First-time VR users can finish the session within the target time

LEARNING

The objectives in section 01

> This document is submitted for client approval before full production starts.