

Product Designer

PORTFOLIO

DERIN YENICE



Hi, I'm Derin, a product designer from Milano. My practice sits between product design, material exploration, and design storytelling. I'm interested in how objects carry meaning through their form, use, texture, and cultural context, and how design can turn everyday behaviors into more thoughtful experiences. My process usually begins with observation and research, then develops through sketching, 3D modeling, prototyping, and visual communication. I like working across both digital and physical tools, especially when a project requires translating an idea into something that can be held, tested, and refined.

Hard Skills

- Rhinoceros
- V-Ray
- Blender
- Figma
- Vizcom
- AutoCAD
- Adobe Programmes
- Microsoft Programmes

Soft Skills

- User research & analysis
- Concept development & ideation
- 3D modeling
- Physical prototyping
- Rendering & visualization
- Sketching & visual communication
- CMF development (Color, Material, Finish)
- Design storytelling & presentation

N10_a
a device that helps you seek outdoors



Thesis Project
01

Wello
smart medical household device



02

JBL SRND
new era of intuitive headphones



03

VELA
smart wearable



04

UFO
arduino prototyped board game



05

N10

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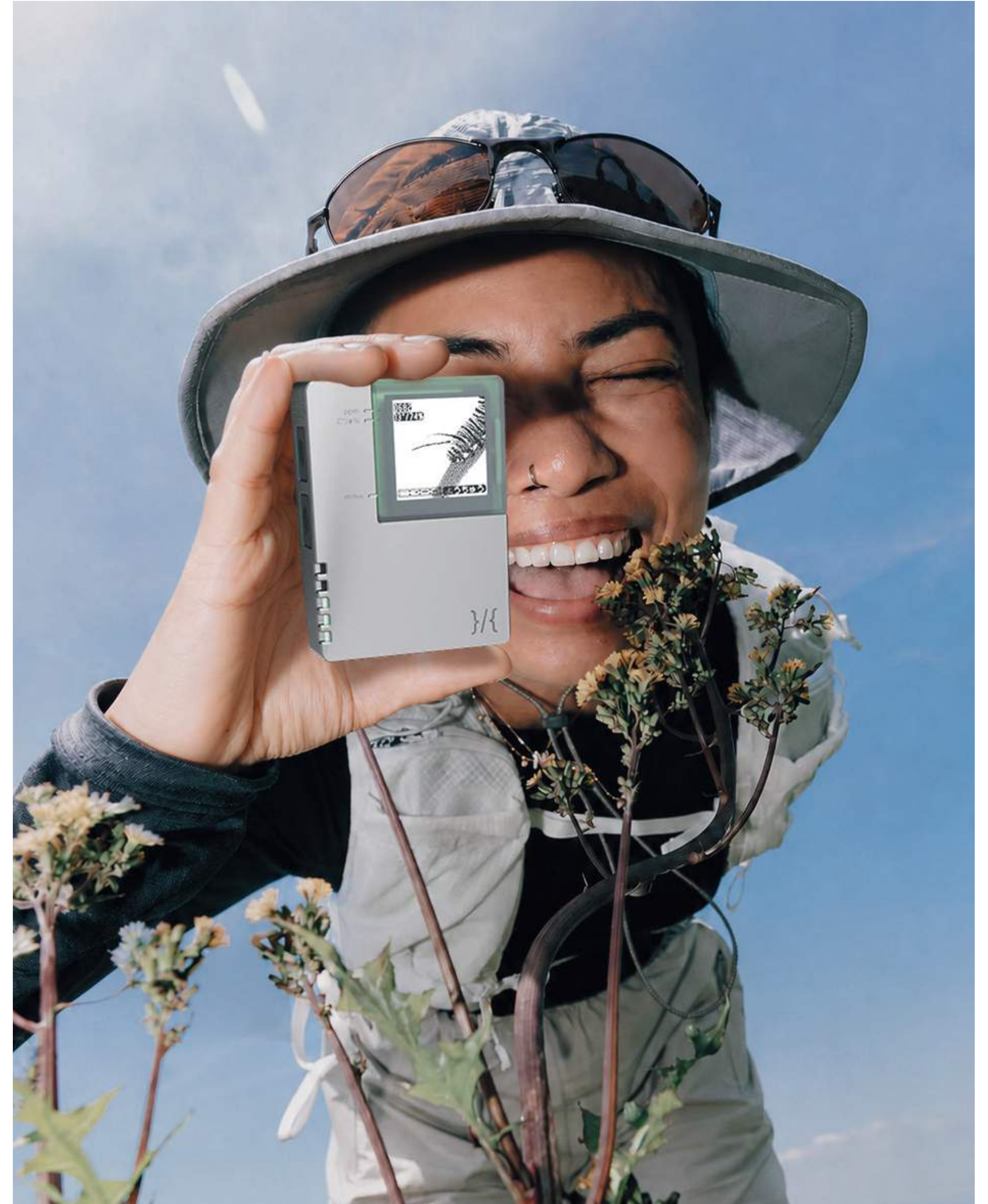
Brief

In today's society, **mental health and urban environments have created a world of division between man and nature.** We also know that **an array of mental conditions can be positively impacted with the simple act of going outdoors.** That is our goal, and to do so we must create a solution for those who most need it, that speaks to them in a way that they understand and are drawn to.

Role

Research · concept development · CAD modeling · electronics prototyping with Arduino · physical prototyping · technical drawings

5



01

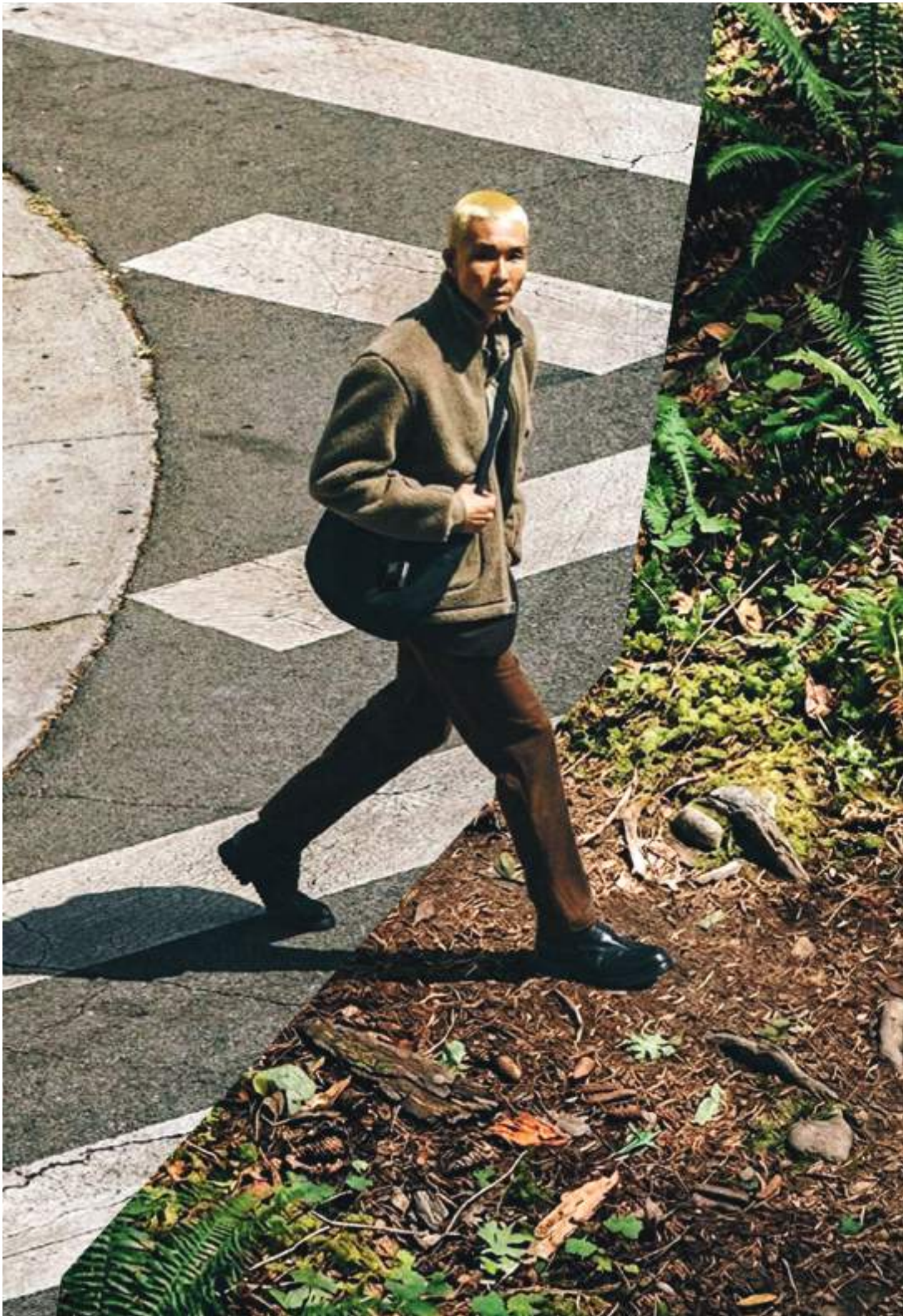
Younger generations spend **most of their daily routines indoors, while growing mental health challenges** show a need for more frequent contact with nature and outdoor environments.

02

Indoor air quality is an **invisible factor that can quietly affect mood, focus, energy, and physical wellbeing**, making the indoor environment work against the user without being immediately noticed.

03

Gen Z is **highly responsive to data-driven information, using numbers, tracking, and feedback** as tools to understand themselves and make everyday decisions.



Problem

Younger generations spend much of their daily life indoors, while **mental and physical wellbeing increasingly depends on healthier routines** and more contact with nature. **Poor air quality often remains invisible, even though it can affect focus, mood, energy, and health.** This creates an opportunity to use **data-driven feedback as a motivation to step outside** and reconnect with the surrounding environment.

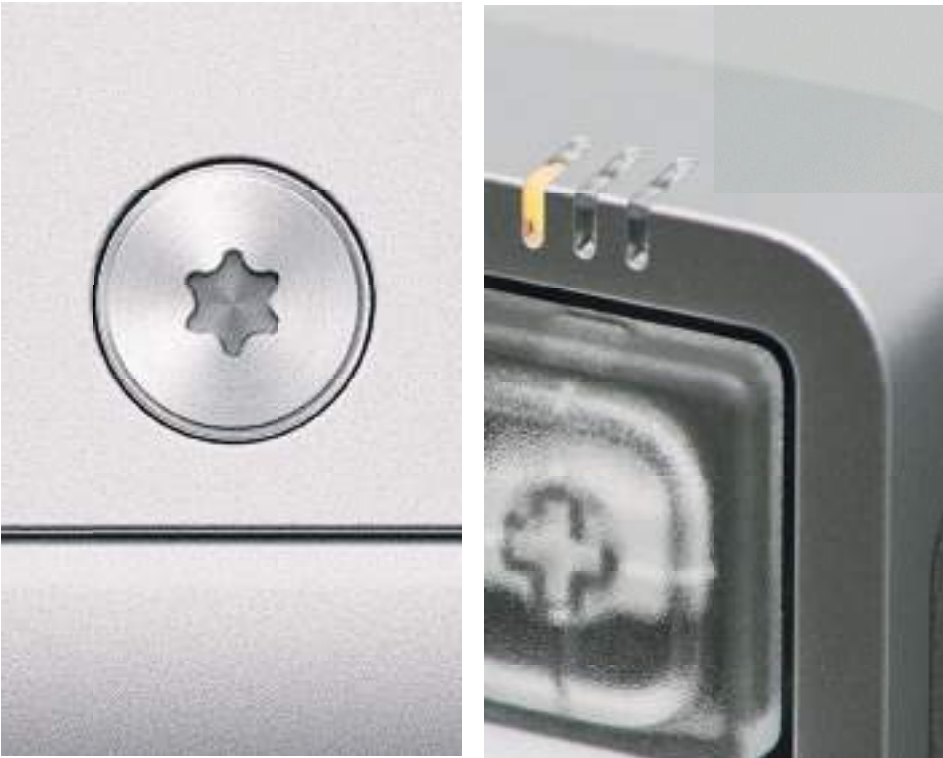
Deliverable

- A research synthesis **identifying the disconnect between environmental awareness** and actual outdoor behavior among younger users.
- A design opportunity **exploring how invisible air conditions can be translated** into readable, emotionally engaging feedback.
- A **behavioral framework that uses environmental data not as passive information**, but as a trigger for healthier and more intentional outdoor routines.

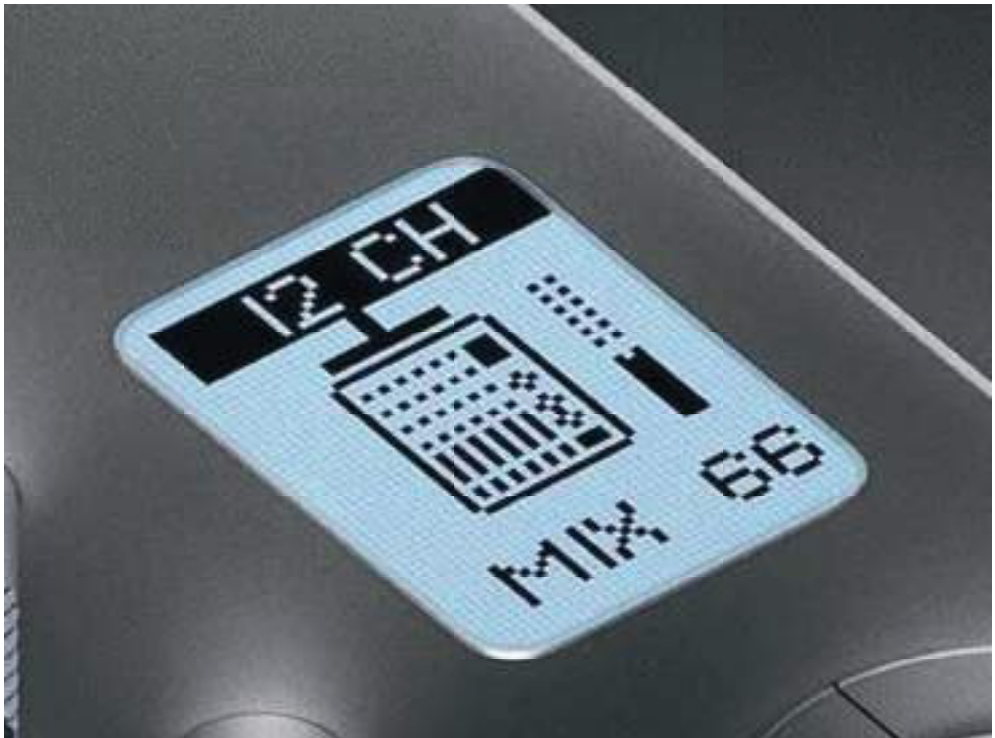
Ideation References

The ideation process explored the current return of portable lo-fi technology and anemoia: a nostalgia for objects and rituals from a past we did not fully experience. Translucent electronics, pocket consoles, pixel-based interfaces, and tactile buttons shaped N10_A's design language, creating a device that feels familiar, personal, and intentionally offline while still using environmental data as its core function.

Material References



Form References



Lifestyle Reference



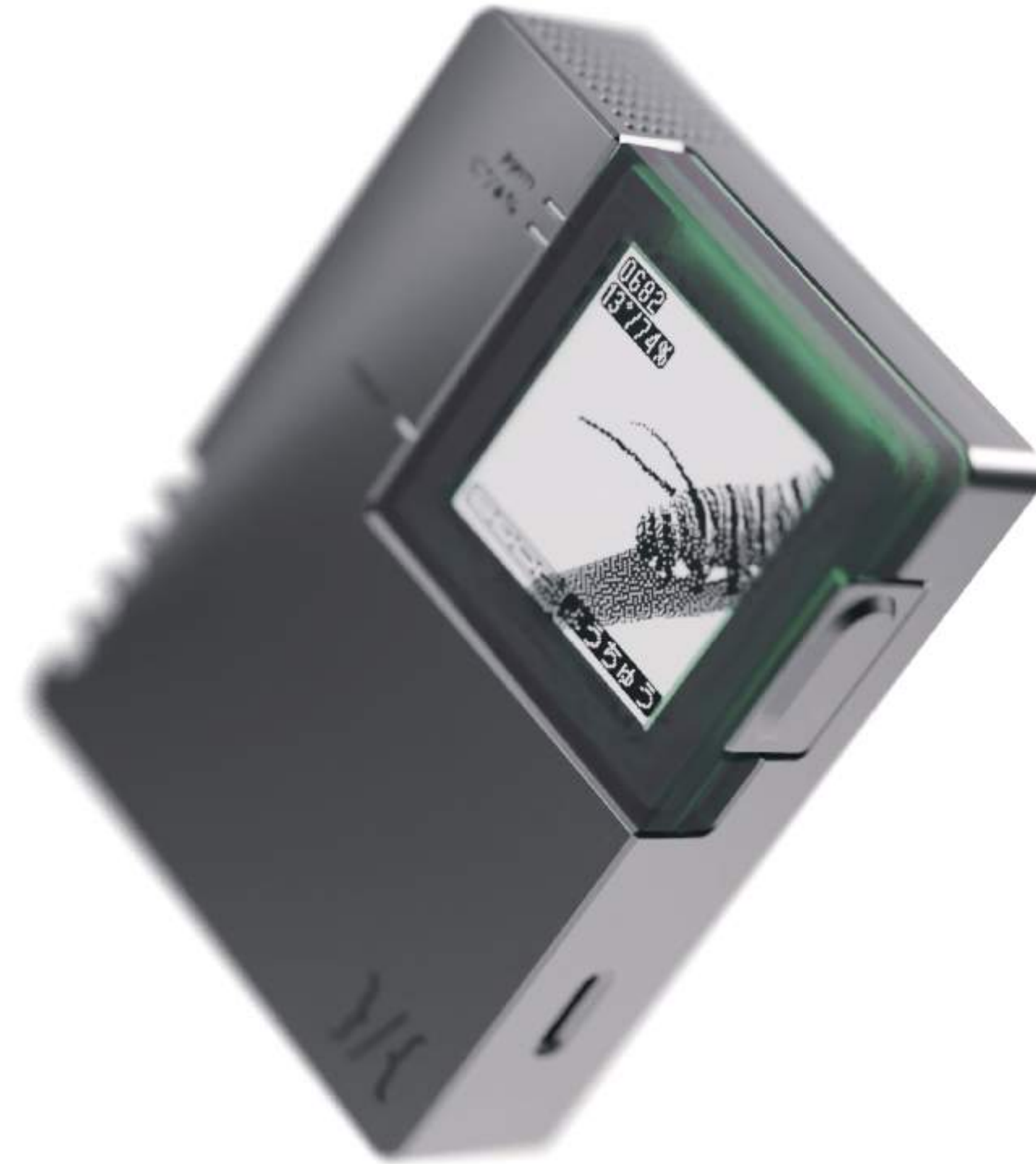
N10_a

(en.ten.a - antenna)

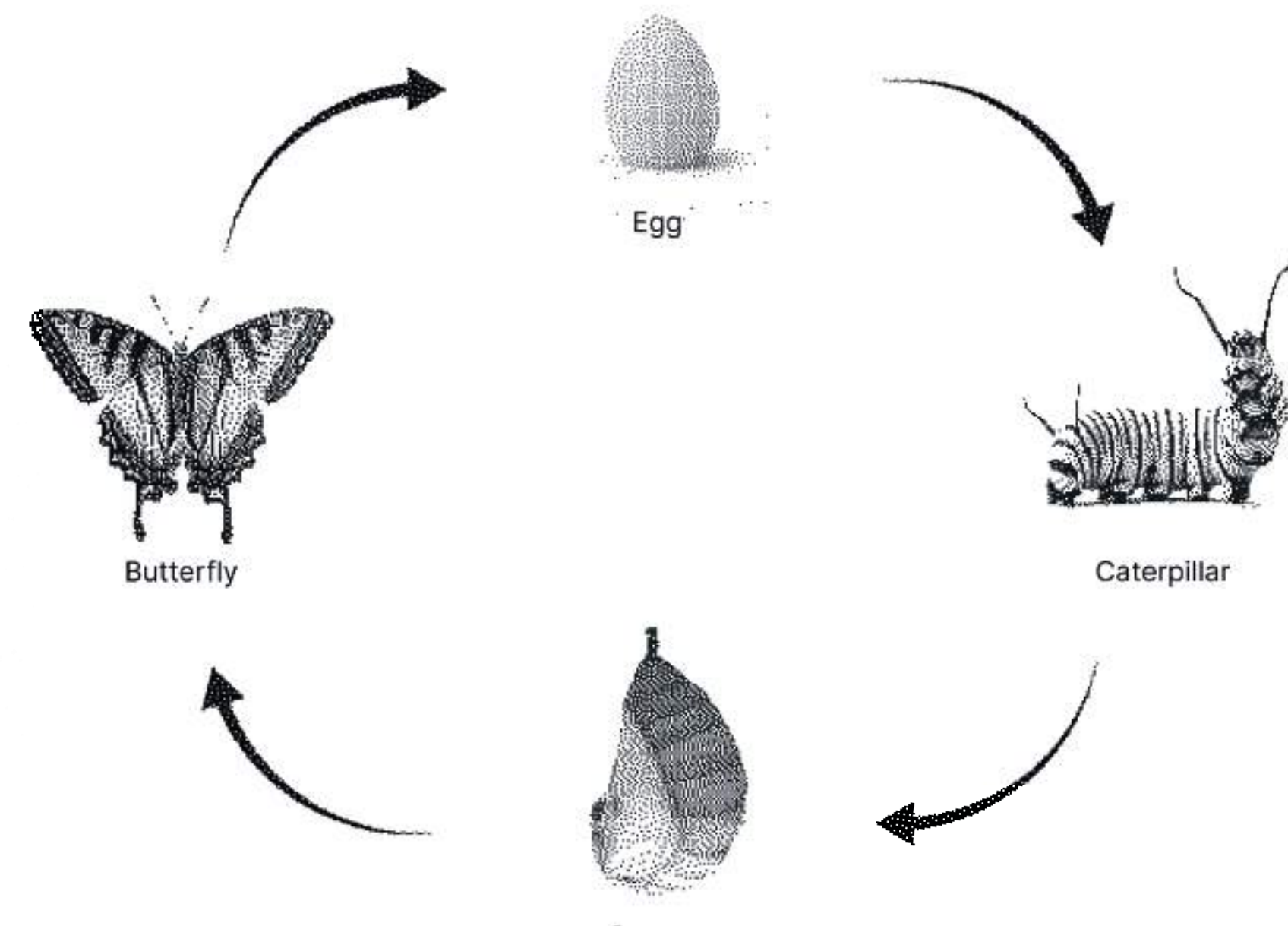
A butterfly does not decide where it goes. It reads the air. **Its antennae sense temperature, humidity, the chemistry of the environment and the body follows. It does not think about going outside. Going outside is what it is built for.** We looked at that and asked one question: what if we could give a person the same signal?

This is Antenna. **Something small enough to live in a pocket. It breathes the air you breathe. It grows when that air is good, and slows when it is not.** Inside it, a companion is becoming something. It does not tell you where to go. It does not send you notifications. It simply needs what only the outside world can give. And **so, eventually, do you.**





The butterfly lifecycle becomes the behavioral structure of the experience. Clean outdoor air and longer exposure support the **companion's growth**, while poor indoor air or sustained high CO₂ environments slow it down and can eventually reverse progression. Instead of treating air quality as abstract data, the system translates invisible environmental conditions into a living process: **egg, caterpillar, cocoon, butterfly, and renewal**. The user cannot fully control the final species, pattern, or rarity, but their choices influence the conditions that shape it. **Good air becomes the fuel for transformation**, turning environmental awareness into a continuous motivation loop rather than a one-time notification.



Attachment Interface

All accessories **connect through a single universal threaded point on the back of the device.** This standard **mechanism was chosen for its reliability, reversibility, and simplicity:** no proprietary connector, magnetic pairing, or compatibility system is needed. The same device can move between contexts without changing its core form, sitting upright on a desk, clipping to a bag strap, or hanging from a carabiner outdoors. Each accessory supports a different use case while keeping the device accessible, visible, and exposed to ambient air throughout the day.

Clip



Stand



Hook



CO2 Indicators

The LEDs **act as the device’s ambient layer, keeping air quality visible even when the screen is asleep**. Their logic is immediate: more illuminated LEDs indicate higher CO₂ levels, while fewer LEDs suggest cleaner air. This **allows the user to read the environment at a glance without waking the display** or interpreting numbers.

Instead of demanding attention like a notification, the **LEDs remain quietly present in the user’s peripheral vision**, on a desk, bag, or pocket. Over time, air quality becomes something sensed rather than checked, turning invisible environmental conditions into a continuous, ambient form of feedback.



Interface

The screen **shows what matters: current CO2 in PPM, temperature, humidity, the companion’s current stage of evolution, and growth progression**.

To keep the display clean, the meaning of each **reading is not shown on screen it is engraved directly into the surface of the device alongside each zone**. The numbers change. The context is permanent. The user learns the layout once and reads the screen in seconds, without menus or labels crowding the display.



Library

The library archives every butterfly that has completed its life cycle. Each is displayed with its unique appearance, species, hatching date, location, and GPS coordinates, creating a visual timeline of the user's outdoor journey. Every butterfly reflects the environmental conditions in which it grew.



Graph

Reveals what the device cannot. While the device focuses on the present and the last 24 hours, the app visualises the full history of the user's air quality, showing daily and monthly patterns across the device's lifespan.



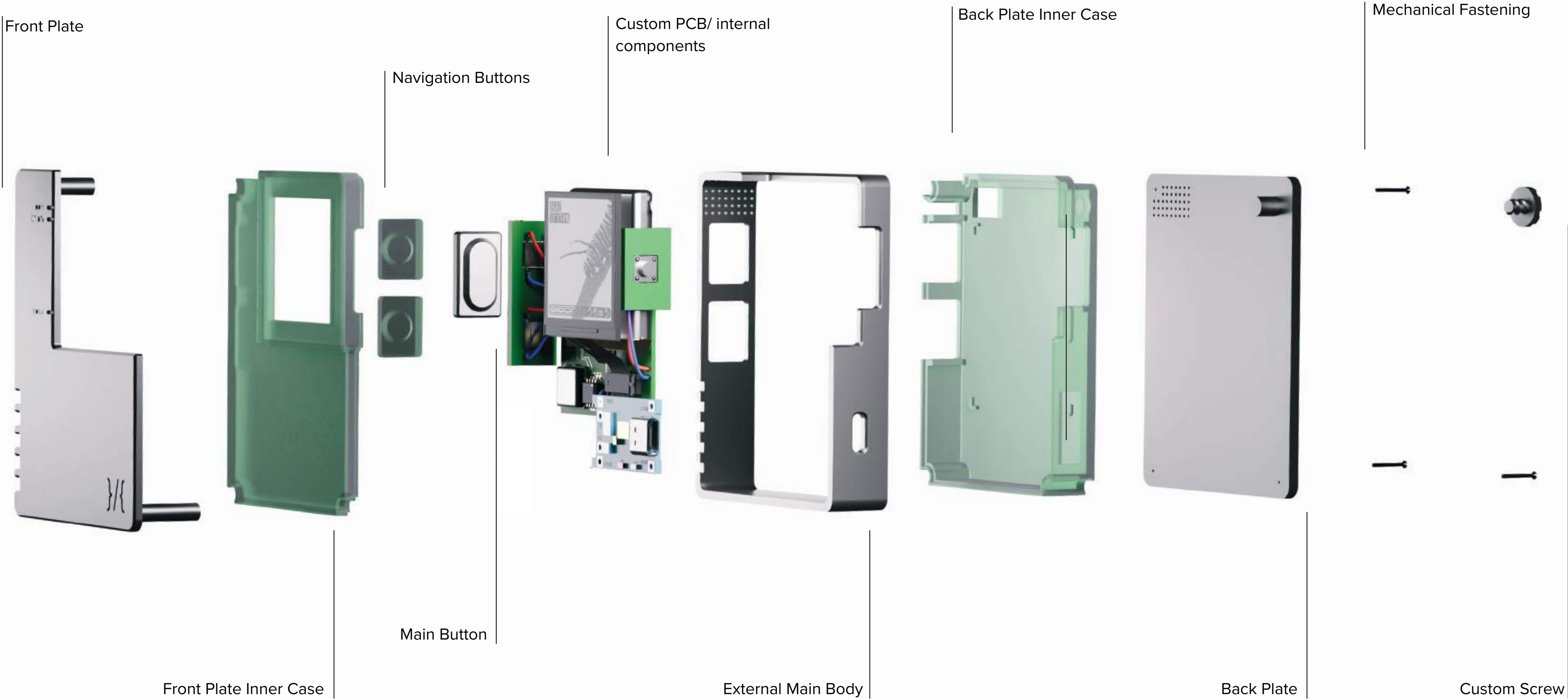
Map/Events

Built around movement, shows where the user has been, where air quality is better, and where events and destinations are worth exploring. As each life cycle demands cleaner air and longer time outdoors, the app provides places to go and reasons to keep moving.



Hive

Make the outdoors feel active rather than static. They are built around real moments seasonal changes, local traditions, and natural phenomena. A spring event might follow a historic forest trail, while an autumn event could reimagine a traditional gathering for a new generation.





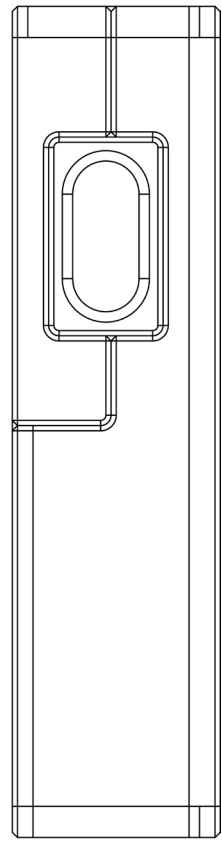
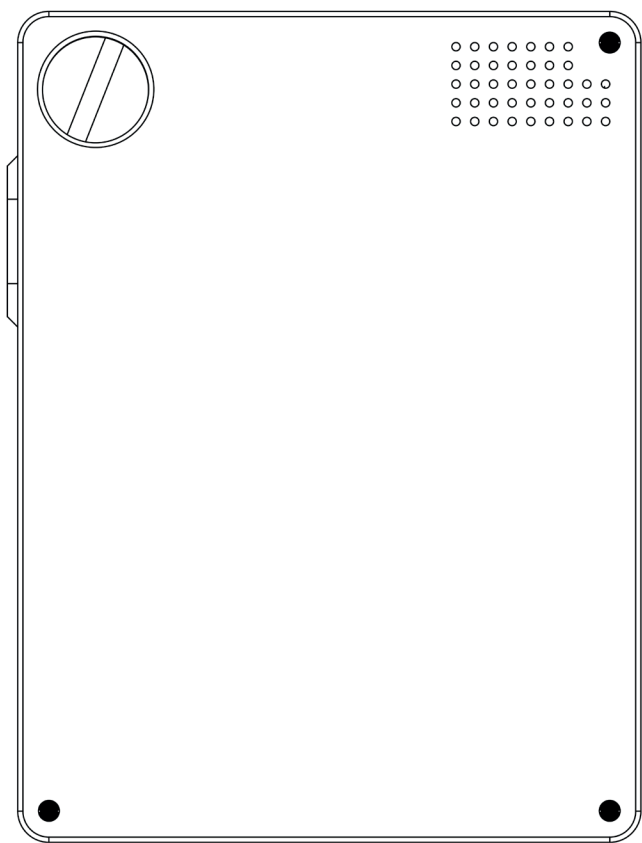
Individual components were 3D printed to evaluate the layered architecture, refine the geometry of each part, and understand how the assembly could achieve the smallest possible footprint. The process established the structural logic that informed later iterations of the design.



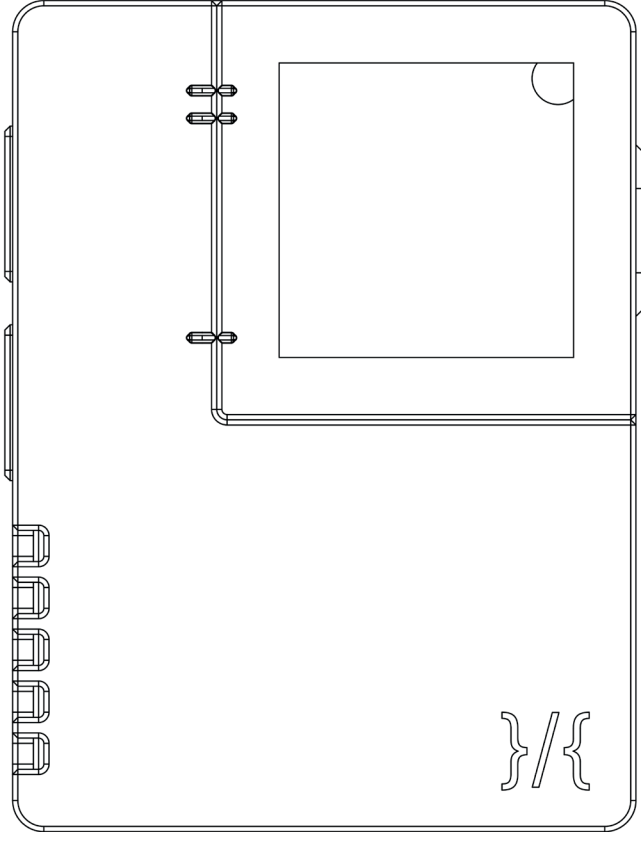
With the physical structure established, the next stage focused on integrating the electronics into the compact body of the device. A working prototype was assembled around an Arduino Nano, combining the CO2 sensor, display, battery, vibration motor, navigation buttons, and supporting modules. This phase tested not only whether the system could function technically, but also whether all components could coexist within the limited internal volume.

Several challenges emerged during assembly. The first iterations revealed small fitting issues between the printed layers, the display window, the battery, and the PCB placement, which required recalculating clearances and adjusting the internal architecture. The electronics also demanded careful cable management, since even a few millimeters of extra wire affected how the case closed. On the software side, the prototype grew into a complex Arduino system of around 7,000 lines of code, controlling sensor readings, interface navigation, LED feedback, vibration alerts, and display behavior. Through this process, the project became a valuable learning phase in translating a visual design into a functioning electronic product, where geometry, hardware, and code had to be developed together.



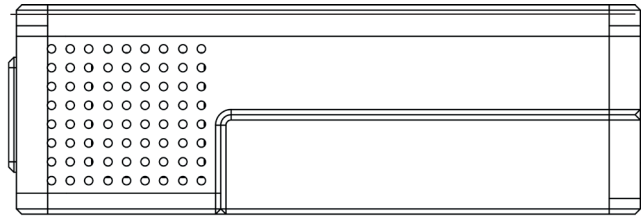


80 mm



60 mm

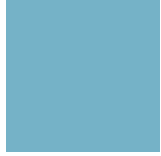
20 mm



Anodized Aliminum
NCS S 4000-N



Anodized Aliminum
NCS S 2030-B10G



Anodized Aliminum
NCS S 4000-N



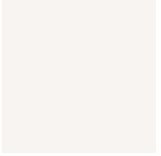
Anodized Aliminum
NCS wS 5020-R60B



Anodized Aliminum
NCS S 4000-N



Anodized Aliminum
NCS S 0300-N





Indoor is our **habit**,

but outdoors is our **habitat**

W

a smart medical home device

E

L

L



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Brief

The startup project brief challenged us to **develop an innovative product or service and transform it into a feasible startup concept**. We were asked to identify a real market need, define a target user, and build a strong value proposition supported by research and competitor analysis. The brief required us to **design the product, create its branding and communication strategy, and consider sustainability, production, and market positioning**. The project concluded with a startup pitch, presenting the concept, business potential, and overall design vision.

Role

Research · concept development · CAD modeling · physical prototyping ·

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01

One in three emergency room visits **could be prevented with accessible home or primary care solutions**, revealing a major **gap in everyday healthcare** support.

02

Global **rise in anxiety and health-related worry**, especailly after the pandemic, with many people **lacking access to reliable evry-day guidance**

03

Current health products are most **single-purpose, indivudal, and reactive, requiring users to actively check data** across multiple devices.



Younger generations spend much of their daily life indoors, while **mental and physical wellbeing increasingly depends on healthier routines** and more contact with nature. **Poor air quality often remains invisible, even though it can affect focus, mood, energy, and health**. This creates an opportunity to use **data-driven feedback as a motivation to step outside** and reconnect with the surrounding environment.

Design Deliverables

- An accessible **everyday health support system focused on prevention, reassurance, and early awareness**.
- A calm and **understandable interaction language** for managing health information at home.
- A connected care experience that reduces fragmentation between users, caregivers, and daily wellbeing routines.

Ideation References

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The ideation process explored **how healthcare technology could feel less clinical and more at home.** Soft domestic forms, calm materials, and familiar lifestyle objects shaped Wello's design language, creating a product experience that feels approachable, discreet, and integrated into everyday routines.

Material References



Form References



Lifestyle Reference





Wello

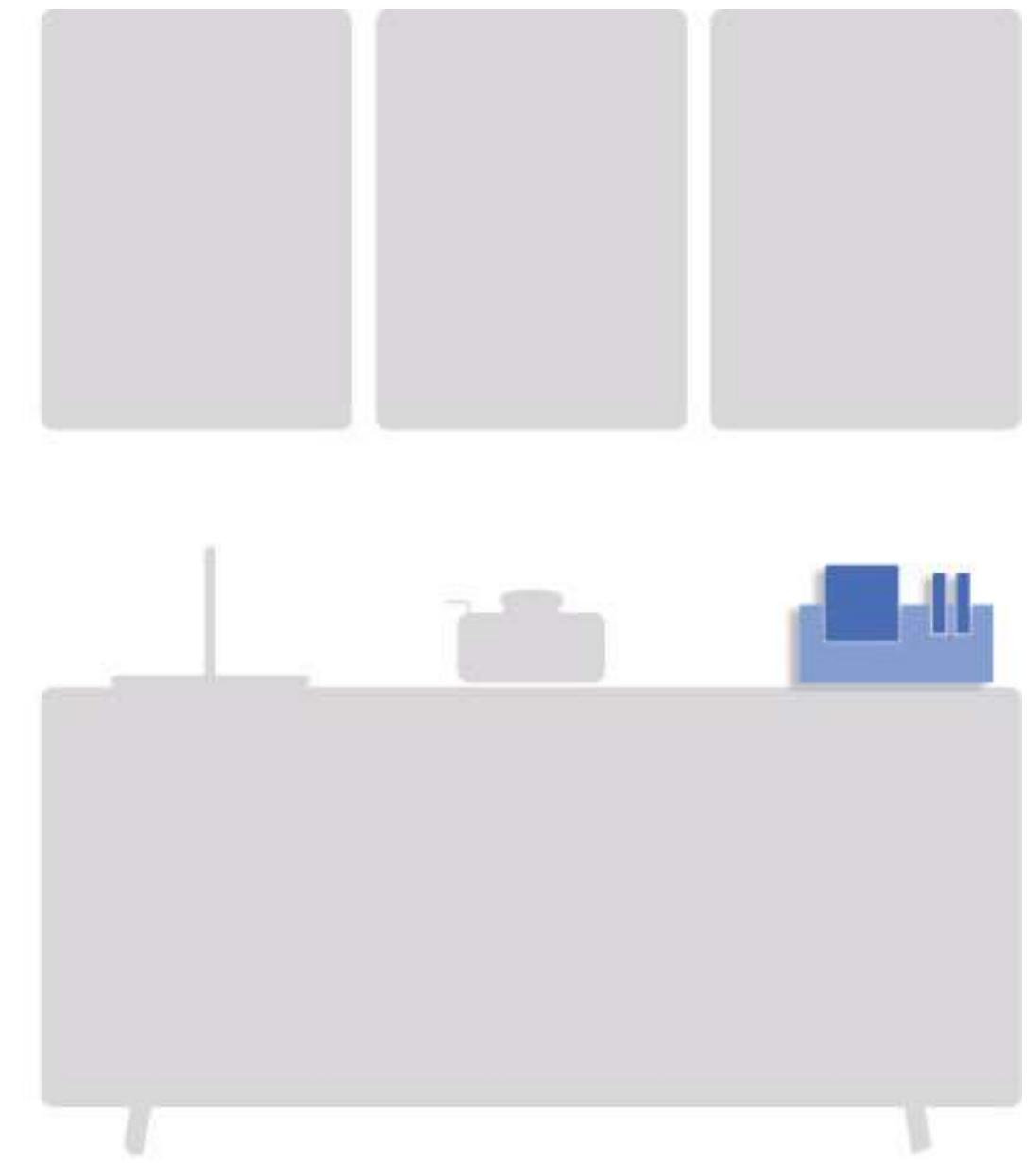
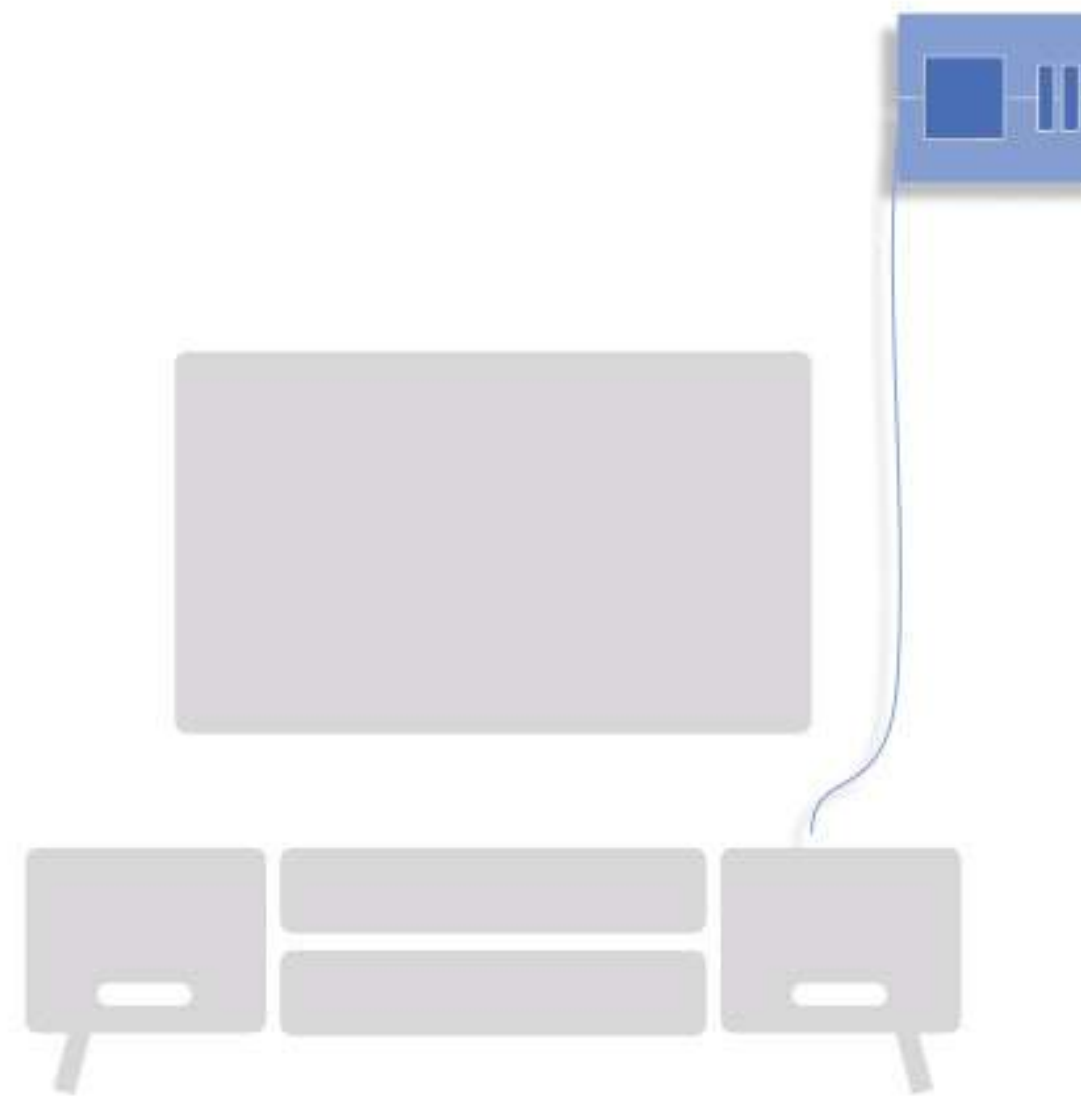
A smart home **health hub** combined with **modular handheld biometric sensor** units that together create a calm, everyday healthcare ecosystem. Wello is designed to act as a familiar domestic object that encourages short daily check-ins. The system collects **non-invasive biometric and environmental data**, processes it through an **AI-supported core**, and translated it into a simple and understandable feedback through the **Wello display** and an **accompanying App**. Wello supports long-term wellbeing by helping users **track habits, receive gentle reminders** and **build awareness** of their and their loved ones' health over time.

Approachability

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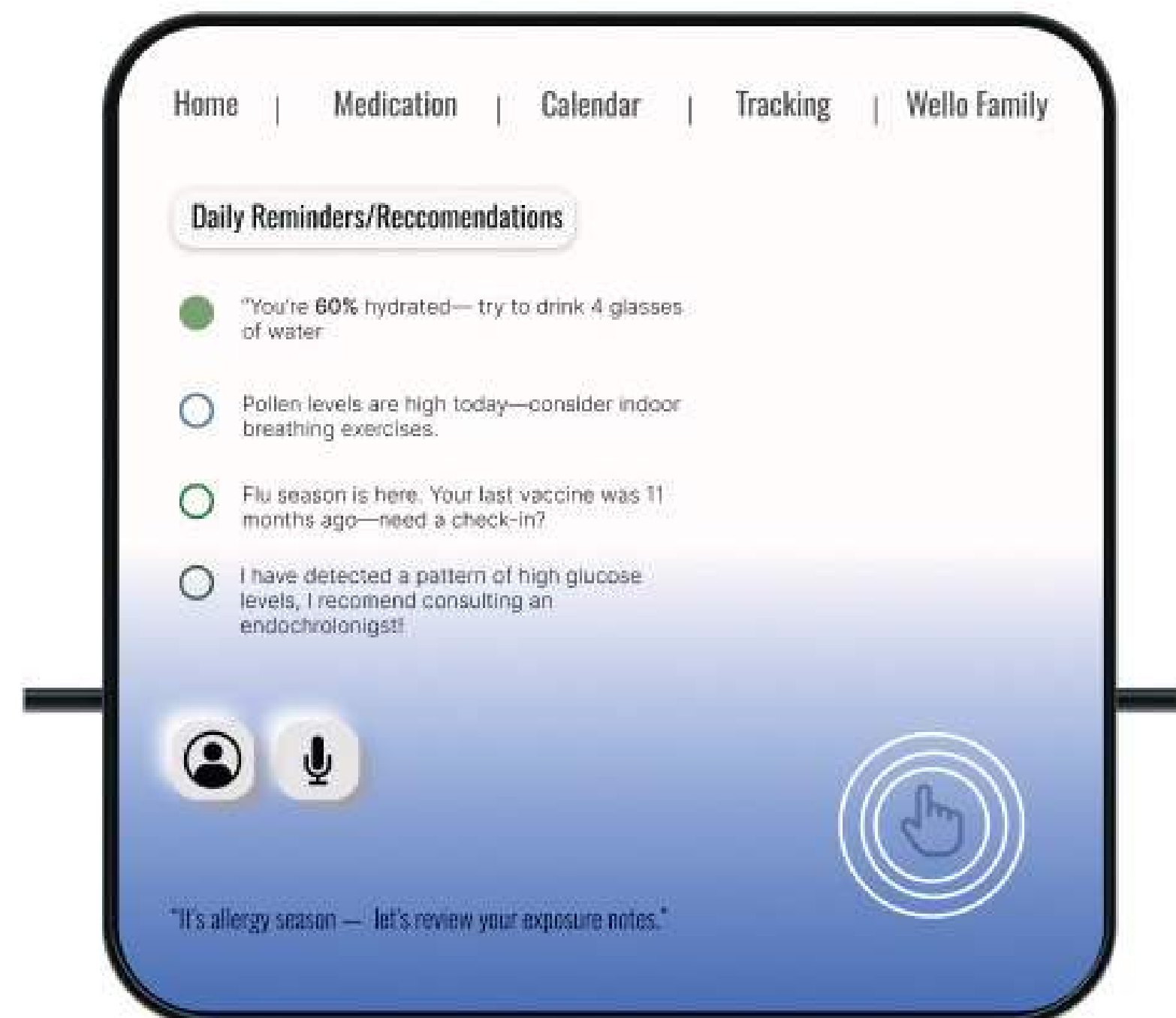
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Wello was **designed to fit naturally into different areas of the home**, from the bedside to the kitchen or living room. Its structure can be placed on a surface or mounted where the user prefers, while the adjustable body opens from 60° to 120° to support different viewing angles and interaction heights. This **flexibility helps daily health check-ins feel less medical, more approachable, and part of the home environment.**



Wello Interface / App

The Wello interface **translates complex health data into simple, every-day guidance** through a calm and intuitive design. With **minimal interactions and clear recommendations**, it supports users of all ages in building healthier routines within a shared home environment.



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The Wello app offers a **more personalized layer, allowing users to track health data, manage routines, and access deeper insights**. Through clear visuals and a soft, supportive tone, it encourages long-term wellbeing and more conscious daily habits.





“Between work, family, and everything else...
taking care of myself always comes last.”

42, Parent, Stockholm

Product Architecture

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Wello Care Display

The display acts as the tangible interface for live feedback, interaction, and trust-building, translating invisible biometric and environmental data into clear, ambient cues.

Wello Care Shells

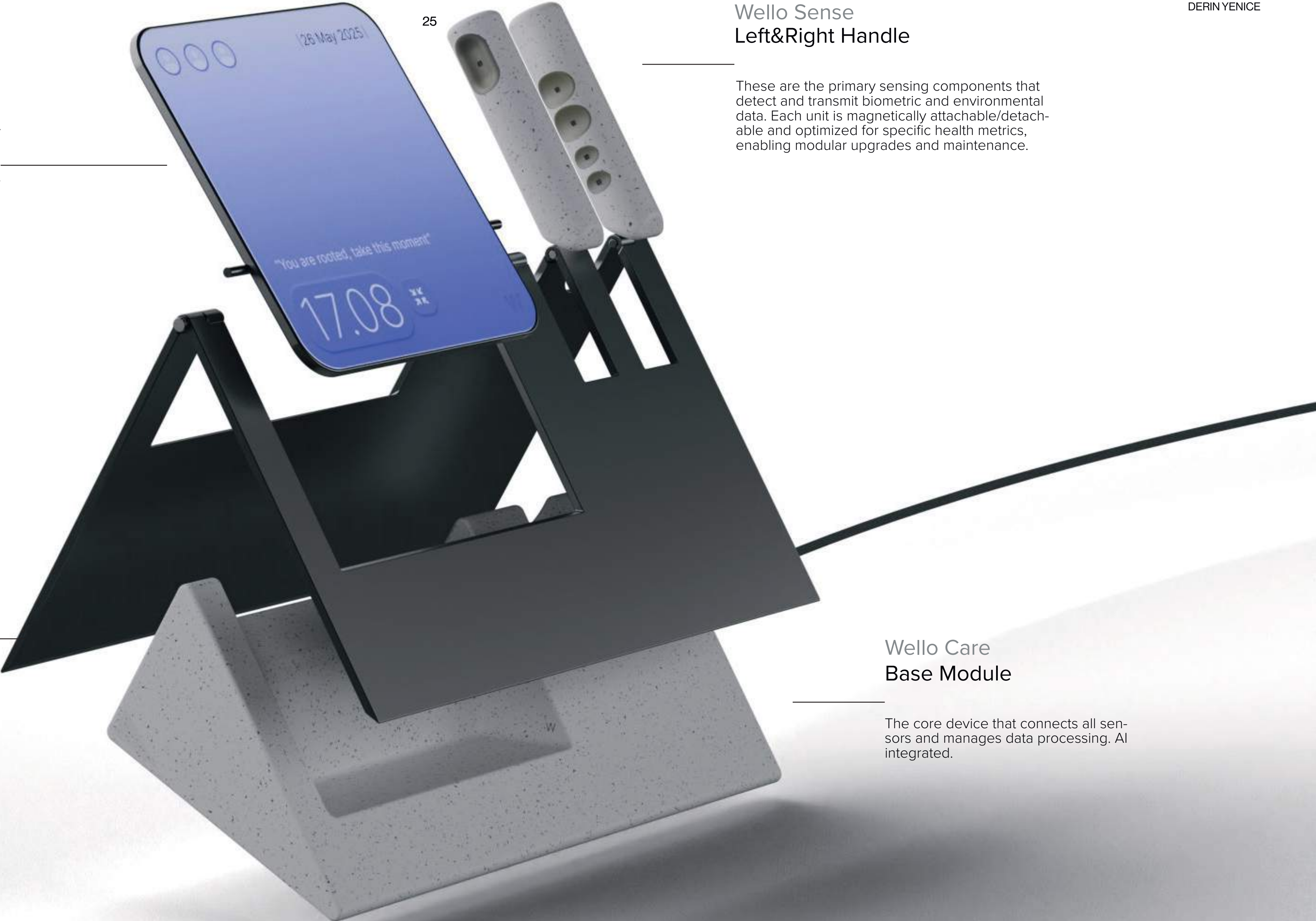
These detachable, shells snap onto the main hub using magnetic connectors.

Wello Sense Left&Right Handle

These are the primary sensing components that detect and transmit biometric and environmental data. Each unit is magnetically attachable/detachable and optimized for specific health metrics, enabling modular upgrades and maintenance.

Wello Care Base Module

The core device that connects all sensors and manages data processing. AI integrated.



Pogo Connectors

Magnetic pogo connectors allow the modules to attach and detach easily, creating a clean connection between the wearable parts without visible cables.

PPG

The PPG sensor uses light to measure changes in blood volume under the skin. It can support readings such as heart rate and pulse-related data through direct contact with the body.

Temperature Sensor

The temperature sensor measures body or skin temperature, adding one layer of biometric data to the system.

BIA

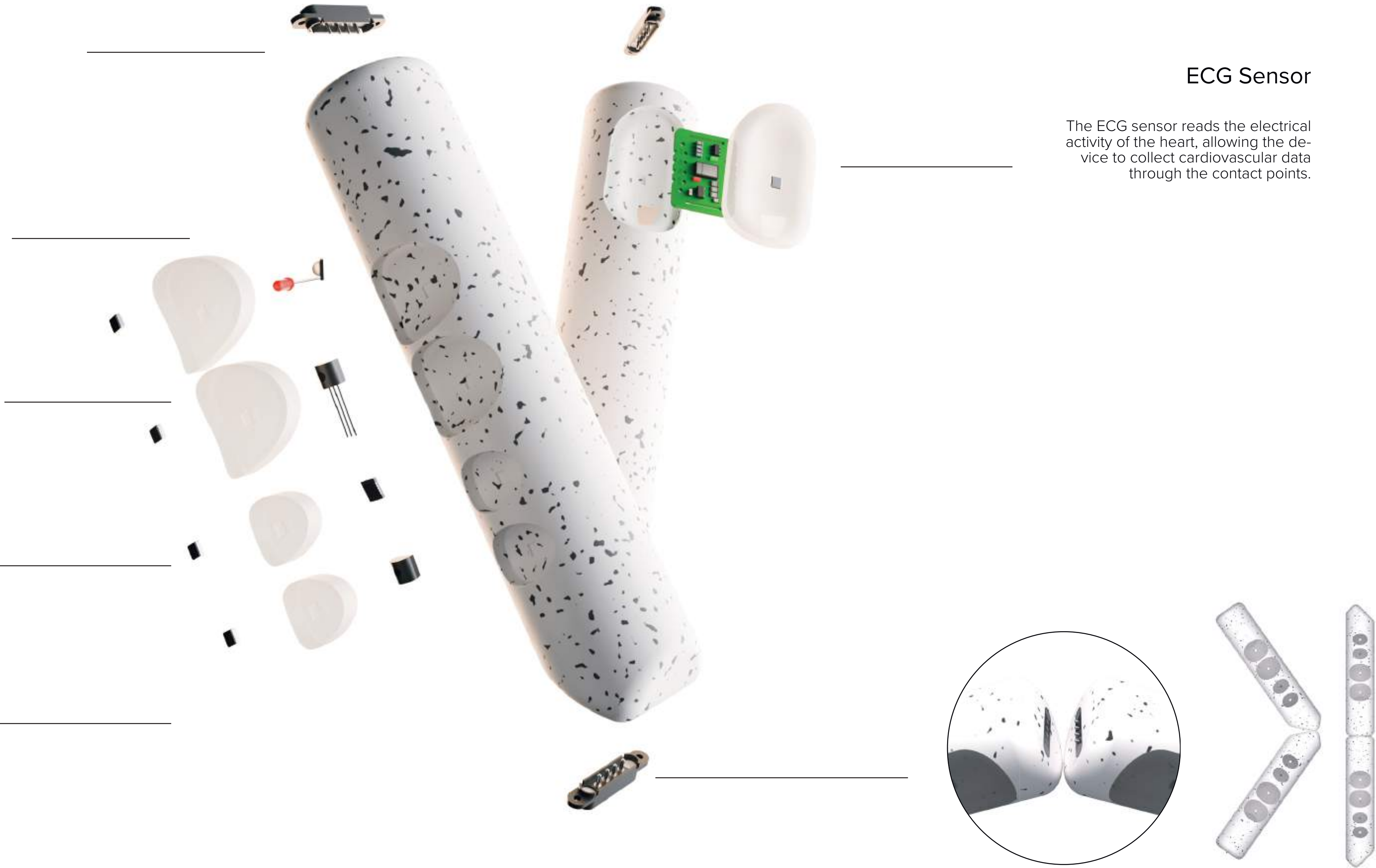
The BIA sensor reads bioelectrical impedance, helping the device understand body-related data through contact with the skin.

Spectroscopy

The spectroscopy module uses light-based sensing to collect additional biometric information in a non-invasive way.

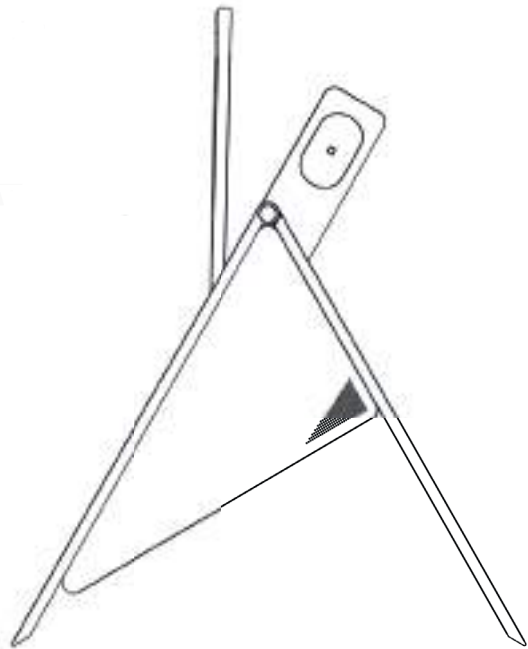
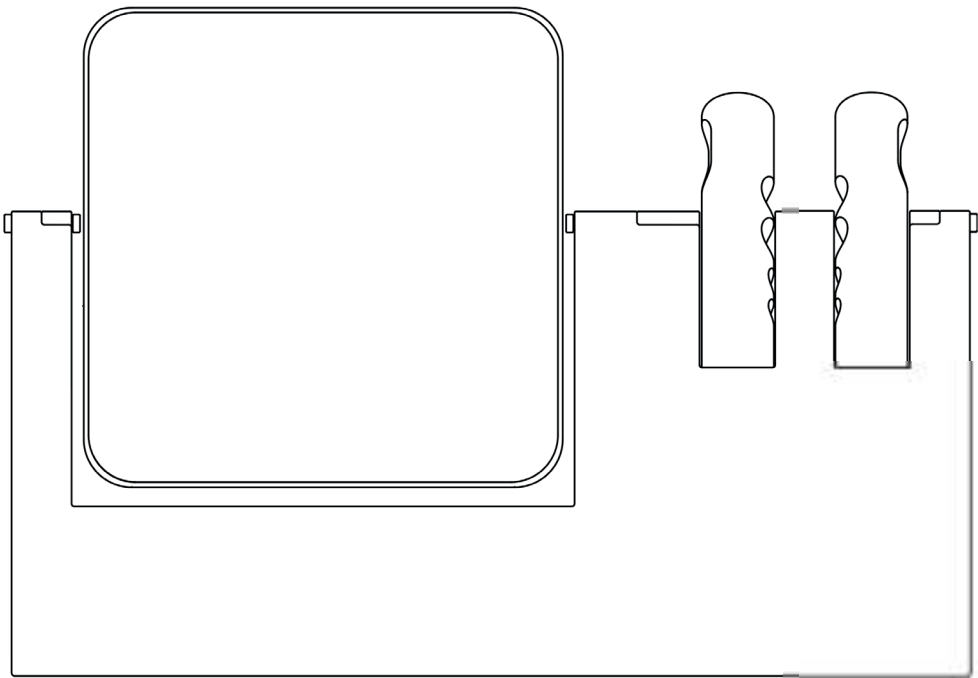
ECG Sensor

The ECG sensor reads the electrical activity of the heart, allowing the device to collect cardiovascular data through the contact points.

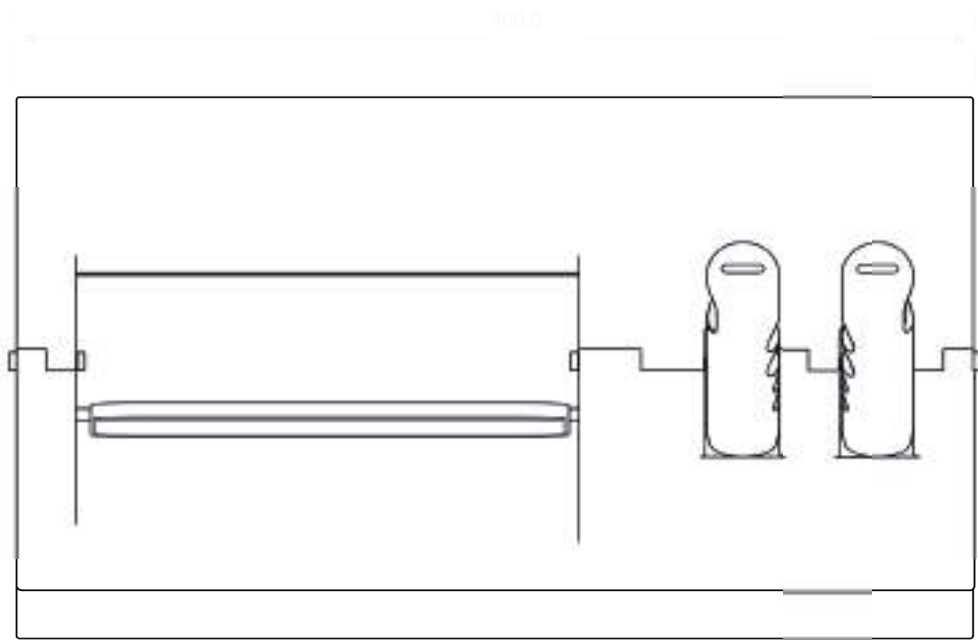


Dimensions / CMF

400 mm



190 mm

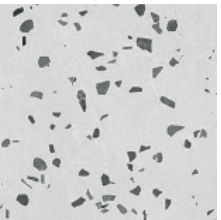


225 mm

27



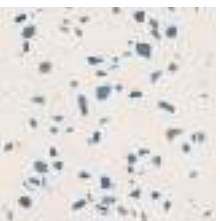
NCS S 8500-N
anodized steel



NCS S 8500-N
recycled plastic



NCS S 7020-R90B
anodized steel



NCS S 7020-R90B
recycled plastic



NCS S 8500-N
anodized steel



NCS S 8500-N
recycled plastic



NCS S 8500-N
anodized steel



NCS S 8500-N
anodized steel



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*“What if **care** didn’t **start in** the crowded waiting rooms, but in the **core of your home**”*



VELA

a smart discreet wearable

Brief

The brief addresses the growing **digital divide**, where increasing reliance on digital services is leaving parts of the population excluded from healthcare, public services, mobility and social life. It calls for the **design of a product or system that actively reduces digital barriers** and supports **inclusive access to everyday services**. The aim is to create a concrete, non-stigmatizing solution that restores autonomy and dignity, enabling equal participation in an increasingly digital society.

Role

Research · concept development · CAD modeling · physical prototyping · technical drawings



01

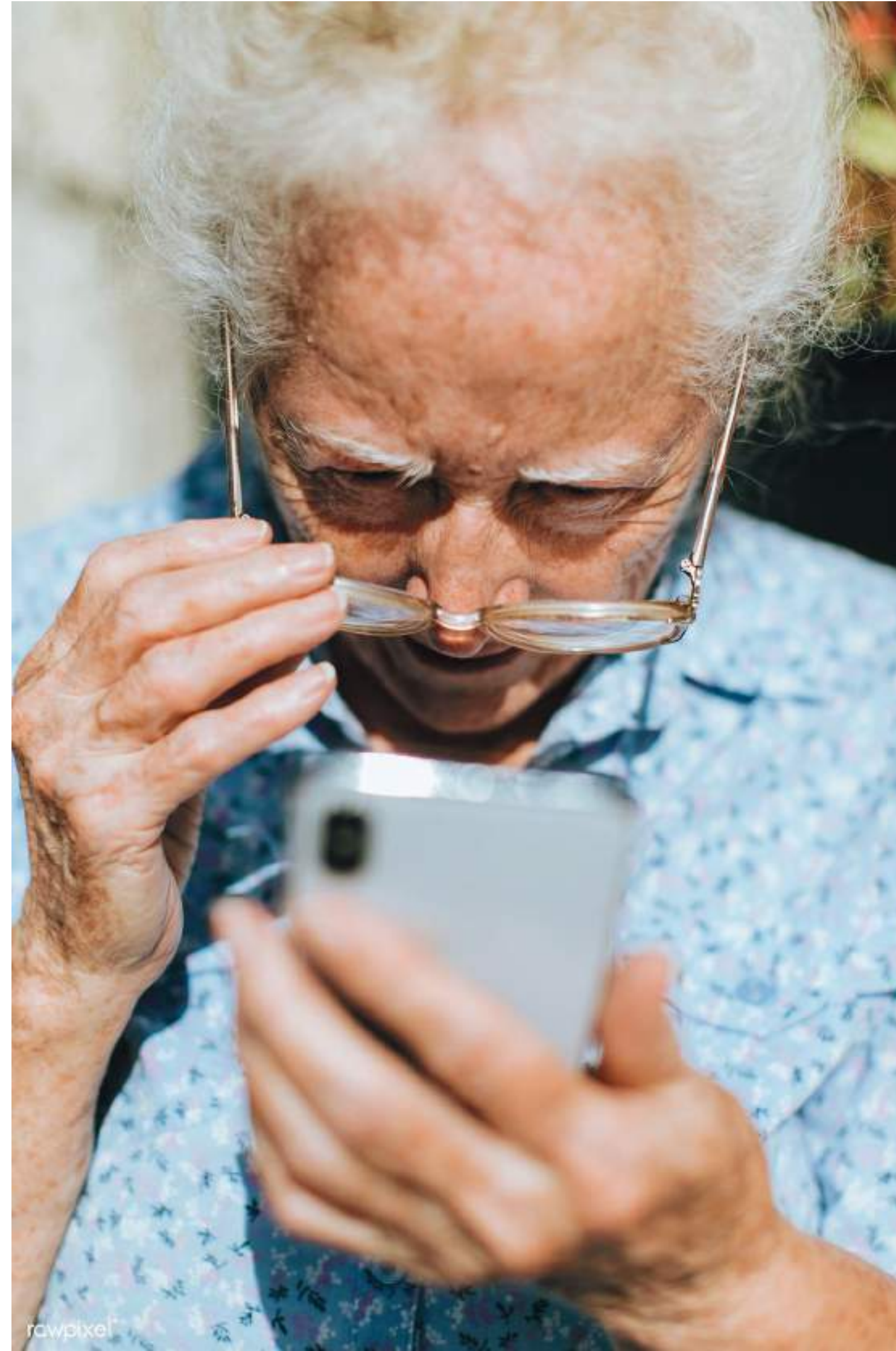
Market analysis showed that current products either **focus on medical management of essential tremors** or on grip accessories failing to address the core issue of everyday digital interaction in a discreet, empowering way.

02

Owning a **smartphone does not equal usability**: anxiety, accidental inputs, and physical instability **turn simple tasks into cognitively and emotionally exhausting experiences**

03

Digital devices **mediate most everyday activities**, while people with **essential tremors struggle** across a wide spectrum of severity to perform basic gestures such as swiping, tapping, or holding.



Problem

Touchscreen interfaces are built around **precision, stability, and fine motor control**. For people with **essential tremors**, these requirements turn daily digital interactions into repeated **moments of frustration, dependence, and loss of confidence**. Research and user journeys showed that **missed taps, accidental actions, and gesture errors do not only block functionality, but also reinforce emotional stress and reliance on others**, gradually excluding users from full digital participation.

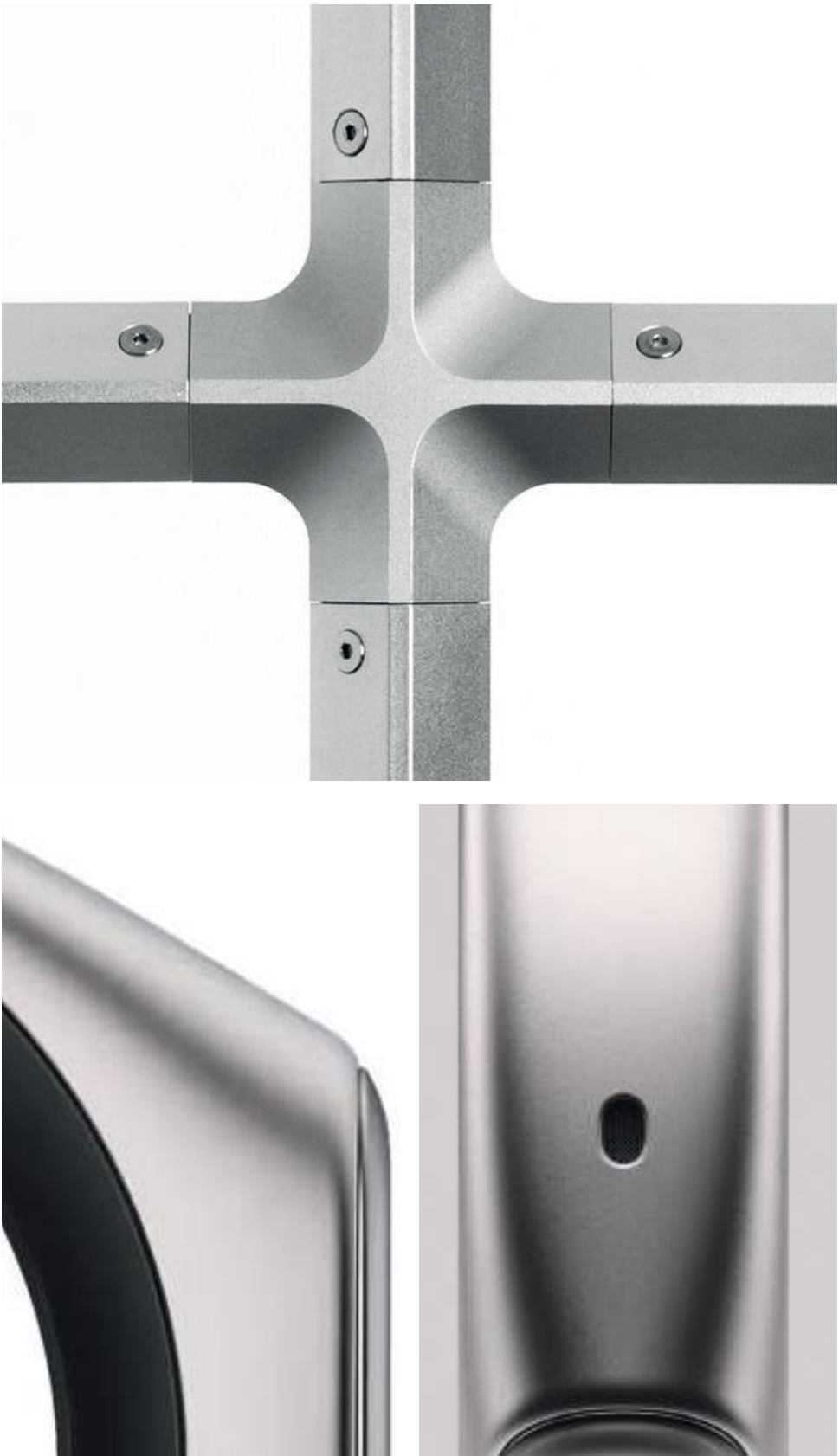
Design Deliverables

- A portable environmental device that uses air quality data as a motivational tool to encourage younger users to spend more time outdoors.
- A physical interface that transforms invisible indoor and outdoor air conditions into visible, readable, and emotionally relevant feedback.
- A product experience that connects data-driven behavior with nature exposure, helping users turn environmental awareness into healthier outdoor routines.

Ideation References

VELA explores the **relationship between precision engineering and the human body**. Contrasting raw, tactile materials with refined metallic structures, the design language embraces imperfection, touch, and intimacy—transforming technology into something that feels inherently personal.

Material References



Form References



Lifestyle Reference



Result

Vela

VELA is a **wearable gesture-control ring** supported by an **adaptive application** that allows users to **control digital interface through larger, customizable movements in the air**. **Motion sensing technology, tremor responsive calibration, and flexible navigation** modes enable the system to learn from each user's movement patterns. By shifting interaction away from the touchscreen, **VELA creates a calmer, more inclusive relationship between the body and the digital environment**.

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Vela's clip is designed as an **inter-changeable top module**, allowing users to adapt the device to different carrying needs **without replacing the entire ring**. The core sensors are housed within the **main PCB and protected by the inner plastic structure**, so the top component can change independently from the main electronics.

A simple **electrical connection integrated into the clip** allows each top module to interface with the device while keeping the central body consistent. This makes the system more flexible and sustainable: users can switch between different clip shapes, grips, and visual expressions **without buying a new Vela**.

Elegant Model

Sharper lines introduce a more **technical and architectural character**, emphasizing precision, modularity, and the engineered nature of the device.



Bold Model

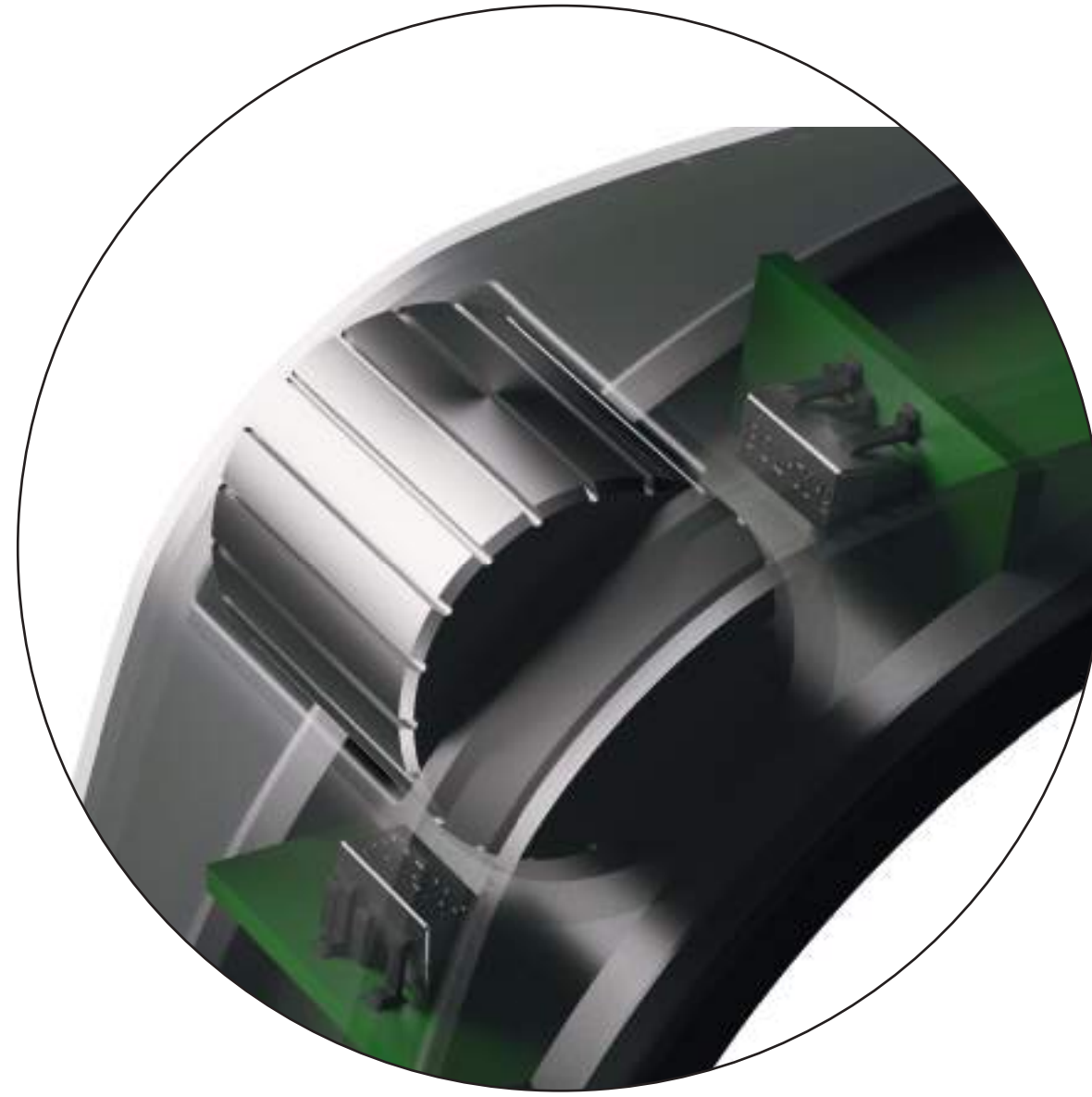
Blending **geometric strength with softened edges**, this model offers a **contemporary signet expression** — bold in volume, refined in finish.



Base Model

A pure **circular form** that reflects continuity and balance. The design highlights VELA's sensing core through a **seamless, timeless silhouette**.



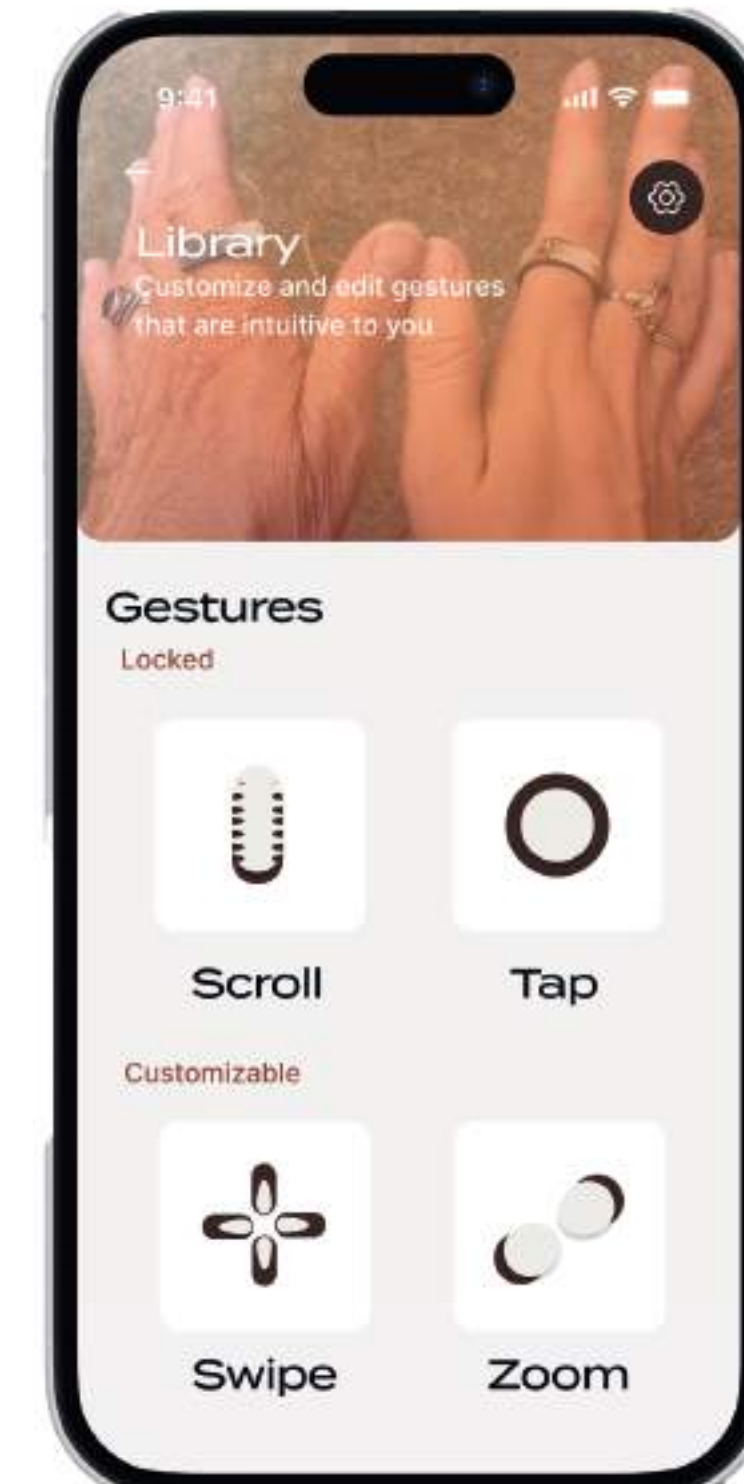
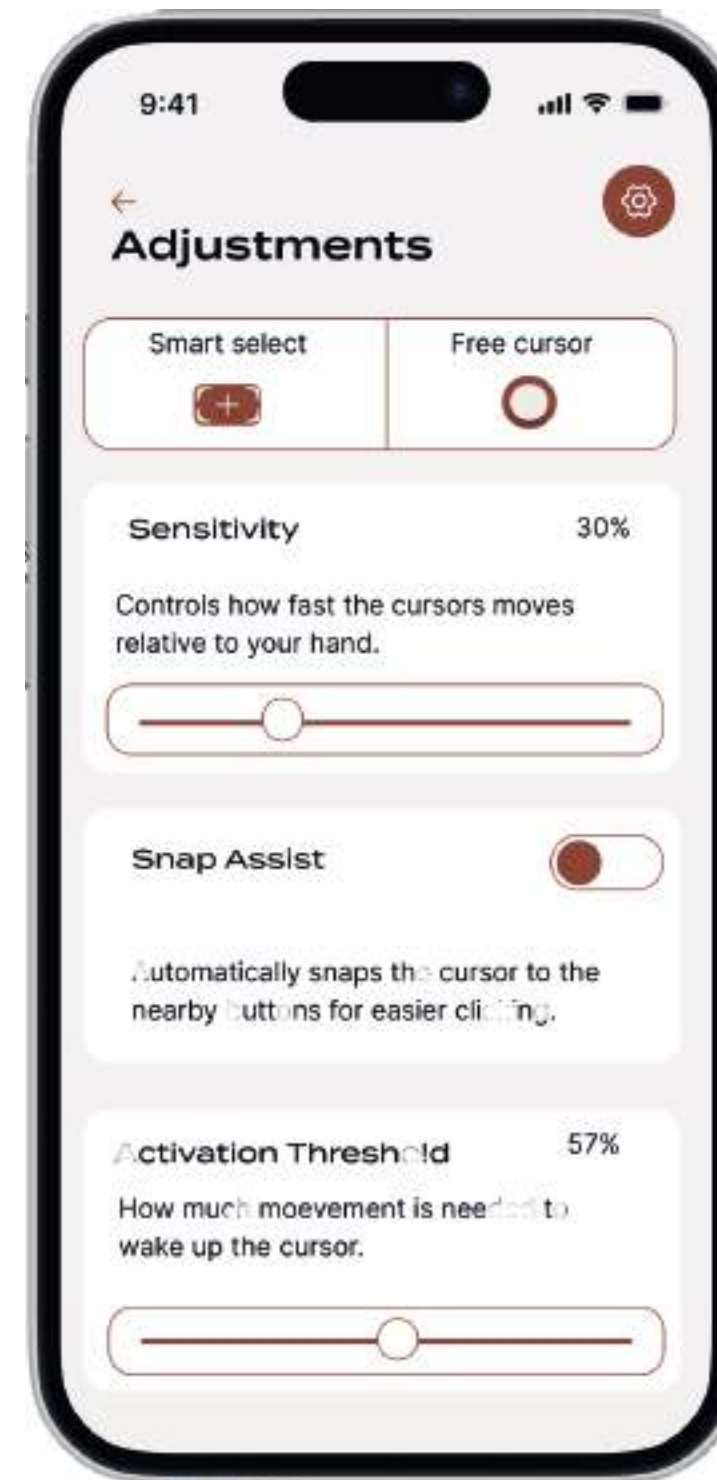
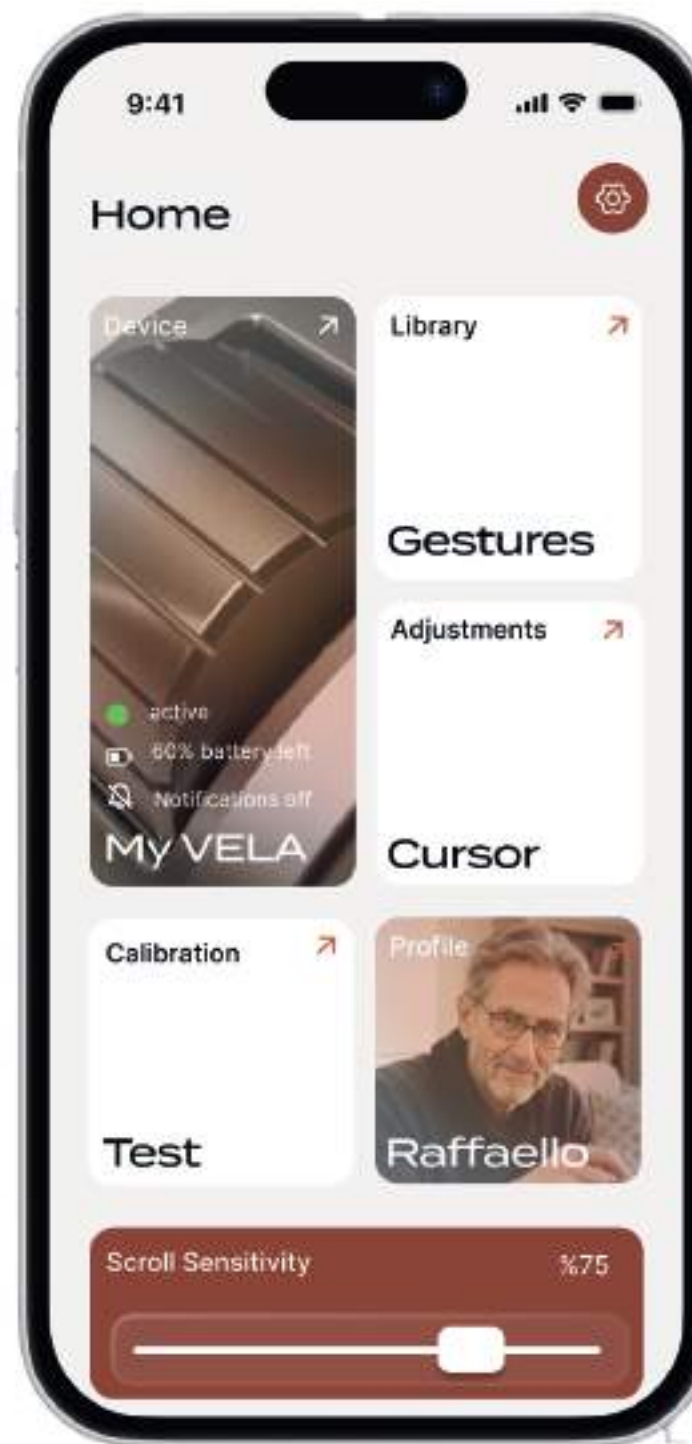


Vela translates **small hand movements into larger, customizable digital gestures**. Motion sensors integrated into the main **PCB** read **orientation, direction, and movement from within the protected inner structure**, allowing interaction without direct contact with the screen.

Through the **companion app**, users can **adjust sensitivity, movement speed, activation threshold, and gesture response according to their own motor control**. The system makes digital navigation more forgiving by **adapting to the user's motion patterns** instead of forcing precise touch-based input



The VELA interface is designed to **simplify interaction** while adapting to individual motor needs. Through a **minimal and intuitive layout**, users can **customize gestures, adjust sensitivity, and switch between interaction modes** such as smart select and free cursor. The system prioritizes clarity and ease of use. By combining accessibility with a calm, familiar digital environment, the interface supports confidence, independence, and seamless everyday use.



Interchangeable Top

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

Inner Shell

Consteructed from PLA to ensure the most comfortabel wear for our user and obtain a discreet and fashion approved look

Bottom

Acts as the main holder for the internal components, sealed shut



Dual Purpose Scroll

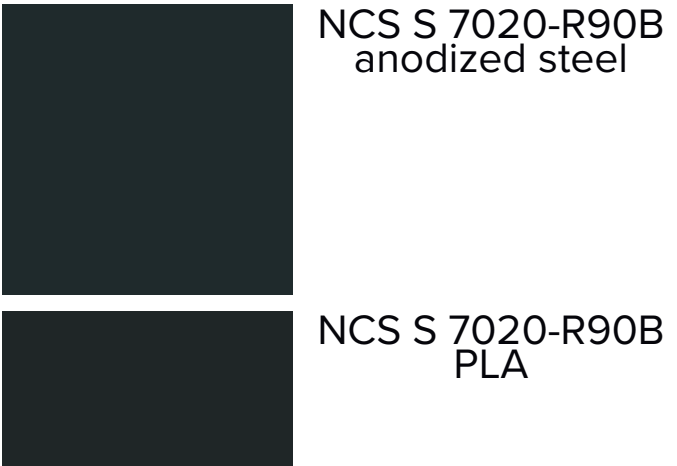
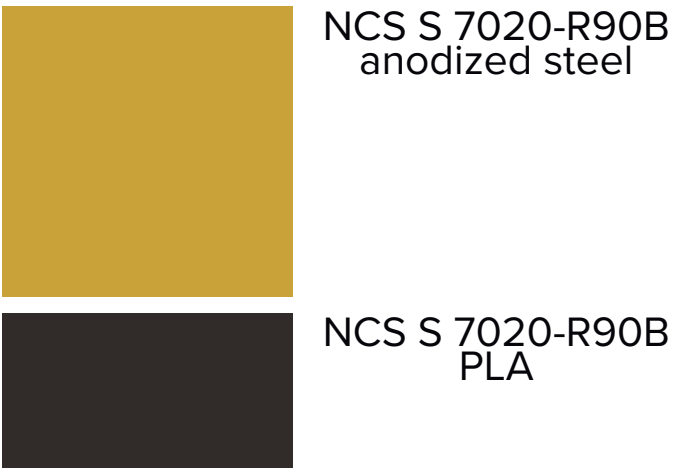
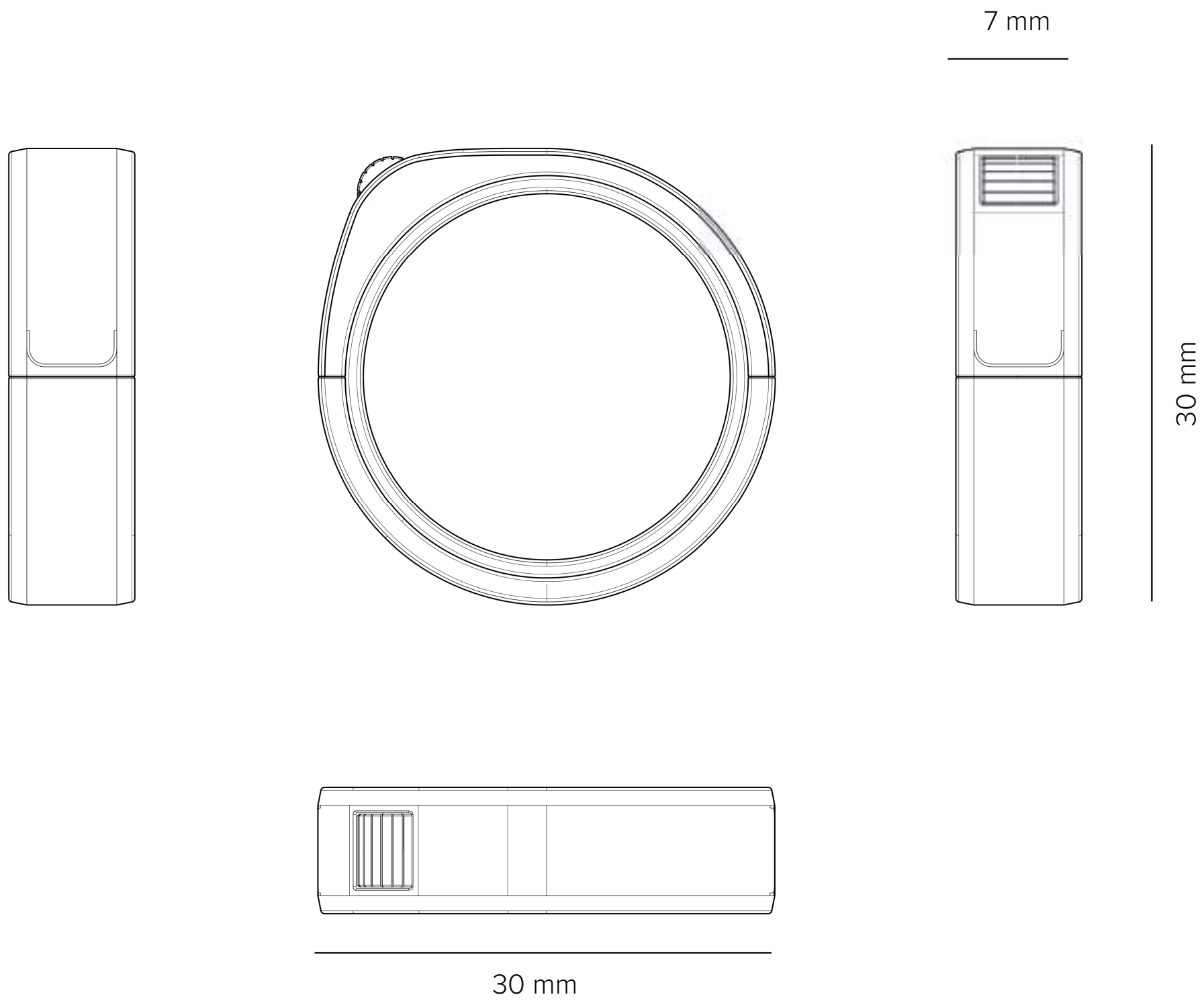
The low-profile scroll provides controlled interaction while maintaining a clean and minimal appearance.

PCB/Hall Sensors

Contains hall sensors to undersatnd the motion of the tactile scroll

Main PCB/IME sensor

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .



*"Imagine an **interface that unfolds around you**, instead of inside your screen"*



SRND

new intuitive era of headphones

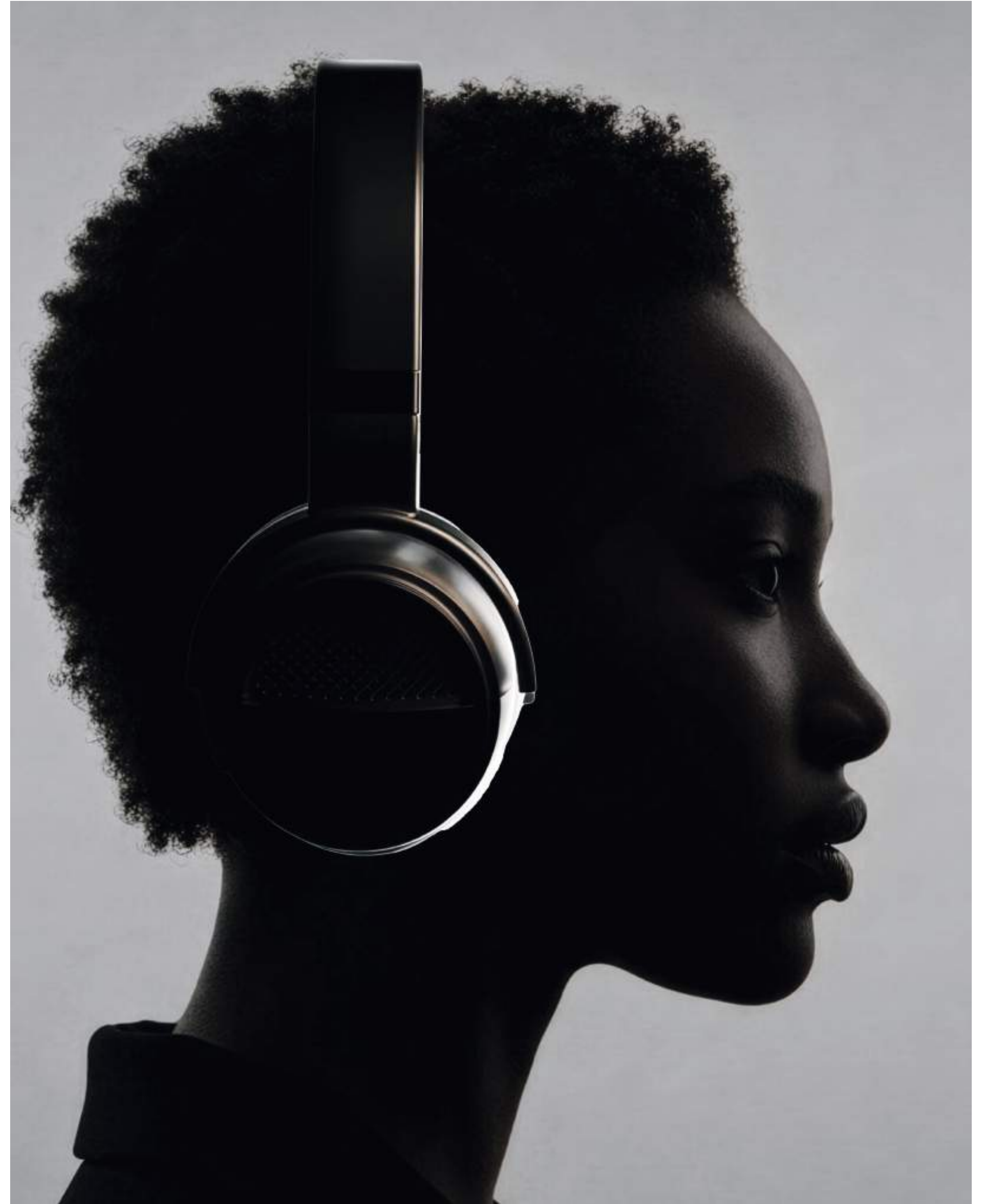
Brief

Designing a **wireless headphone** for the well known audio brand JBL. The headphones should be for the user cluster called city dwellers. Aged between **25-40** lives in **metrpoloitan cities**. **Works in a corporate job** from 9-5. Prefers to **use public transportation** and biking around the city when going to work.

Role

Research · concept development · CAD modeling · rendering · technical drawings

41



01

People living in cities actively **avoid using full noise cancellation** because it makes them feel stressed, unsafe, or **disconnected from their surroundings**

02

Users reporting **long term use** leading to **headaches, sweating, and discomfort** from stiff headbands and leather earcups.

03

Users see **headphones** not only as technological devices, but also **as fashion statements and wellbeing tools**.



Problem

Current wireless headphones heavily prioritize **isolation and passive noise cancellation, which often creates discomfort, stress, and safety issues** for city users. There is a clear gap for a headphone that supports long-term comfort and awareness without sacrificing sound quality.

Deliverables

- A city-focused headphone concept that balances immersive listening with environmental awareness and everyday safety.
- An ergonomic product experience designed for long-term comfort, using softer materials, breathable contact points, and reduced pressure on the head.
- A visual and interaction language that positions headphones as both a technological device and a personal lifestyle/wellbeing object.

JBL SRND explores sound as a moving, personal atmosphere within the city. Inspired by urban motion, tactile materials, and individual expression, the concept shifts audio from a fixed device to a fluid experience that travels with the user.

Material References



Form References



Lifestyle Reference



JBL SRND

JBL SRND is a wireless **headphone designed to, balance listening with environmental perception**, allowing users to stay connected to their surroundings while enjoying high-quality audio. Semiopen-back elements, breathable materials, and a soft, ergonomic structure improve comfort for long daily use, while the integration of a PPG sensor introduces a subtle layer of wellbeing monitoring. The result is a headphone that aligns technology, accessibility, and emotional comfort.



Tactile Features

The button layout was **designed around the need for touch-readable commands**. **Raised symbols, separated shapes, and clear physical feedback** allow users to **recognize each action** without looking at the headphones, supporting safer and more intuitive use while moving through the city.

“Sensory buttons
offers *limited movements*”

26 , Interviewee , London



Semi-Open Back Technology

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The semi-open back structure was **developed from primary and secondary research showing that city users want to stay aware of their surroundings while listening.** Inspired by studio headphones, the earcup allows outside sound to pass through in a controlled way, reducing the sense of isolation without becoming distracting. The **criss-cross layered texture creates a limited airflow path, helping the earcup breathe while adding a protective barrier** between the internal speaker area and the outside environment.



Headband

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

Head Cushion

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

Ratcheting Slider

a ratcheting telescopic adjustment system with discrete detent steps

Memory Foam Ear Cushions

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

PPG Contact Surface

a ratcheting telescopic adjustment system with discrete detent steps

Tactile Control Buttons

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

Earcups

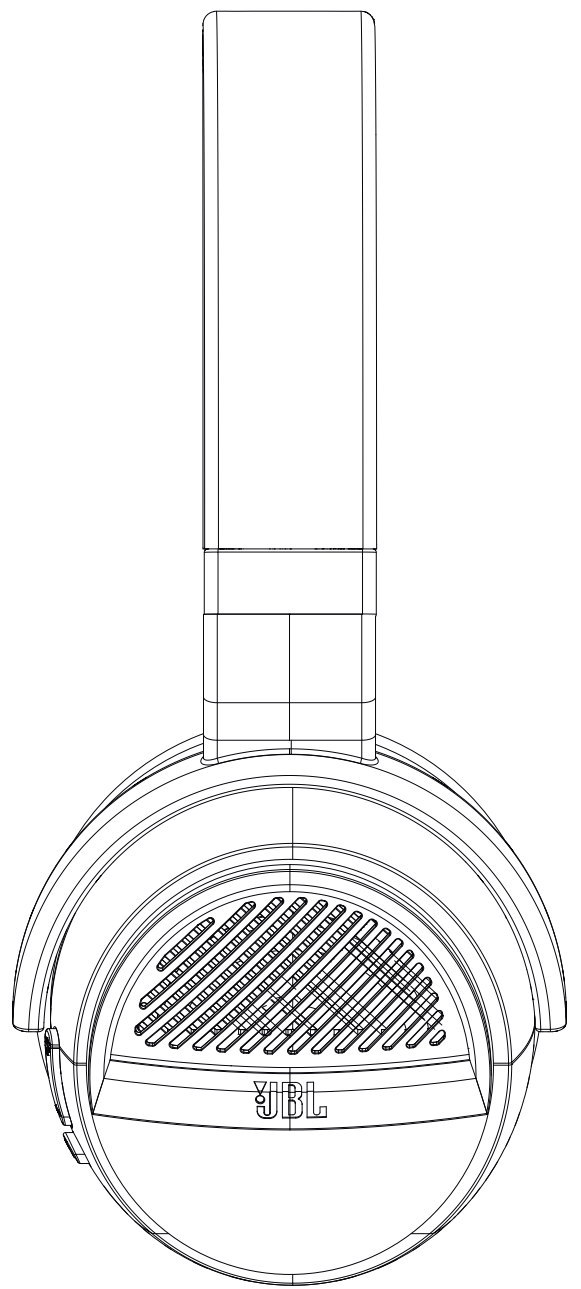
Oval semi-open back earcups incorporate a double-layer cross-grill system, balancing ventilation with structural protection

Battery Indicators

Constructed to fit all head shapes with a curvilinear side profile, acts as the strucutral bone .

Dimensions / CMF

155 mm



80 mm

190 mm

Anodized Aliminum
NCS S 8010-R50B



Anodized Aliminum
NCS S 7020-R90B



Anodized Aliminum
NCS S 4010-B50G

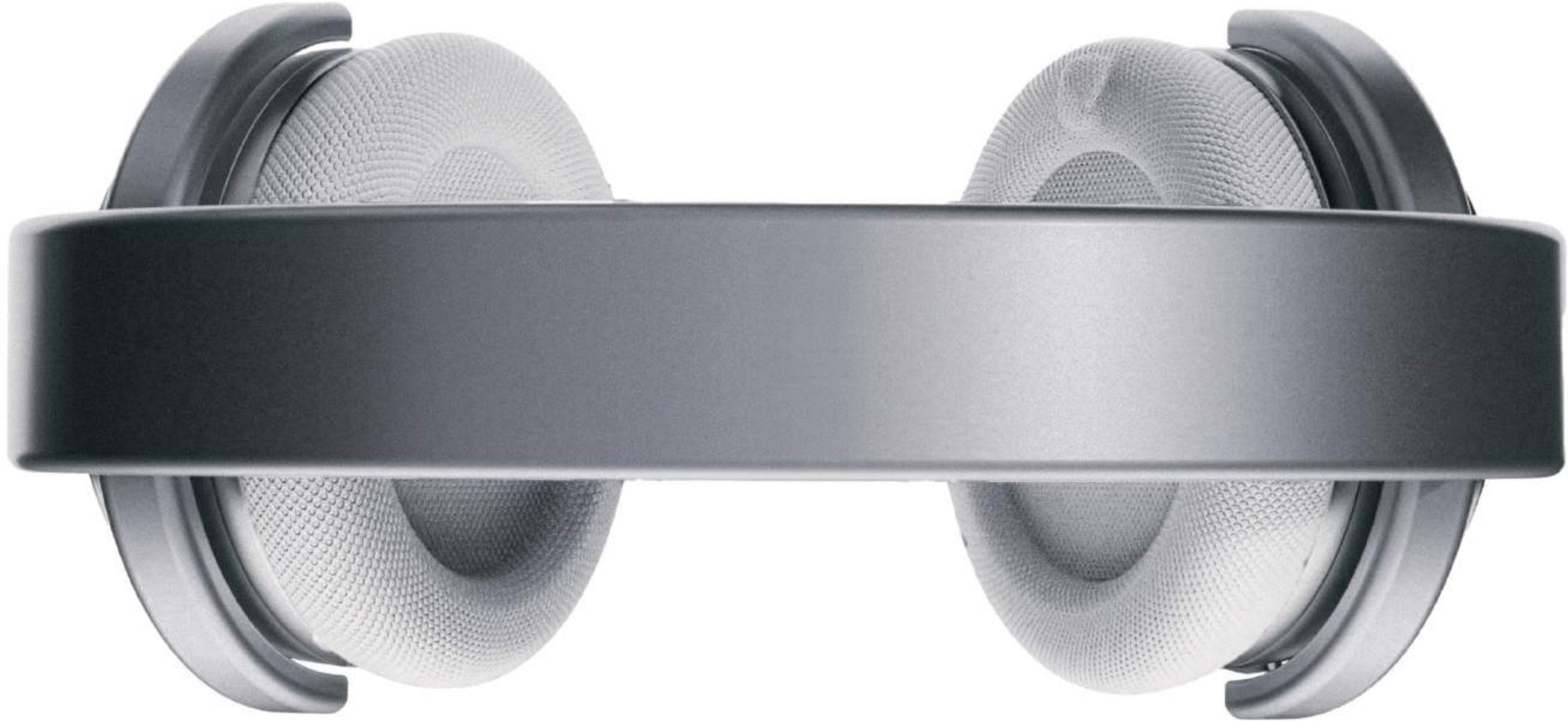


Anodized Aliminum
NCS S 3502-B

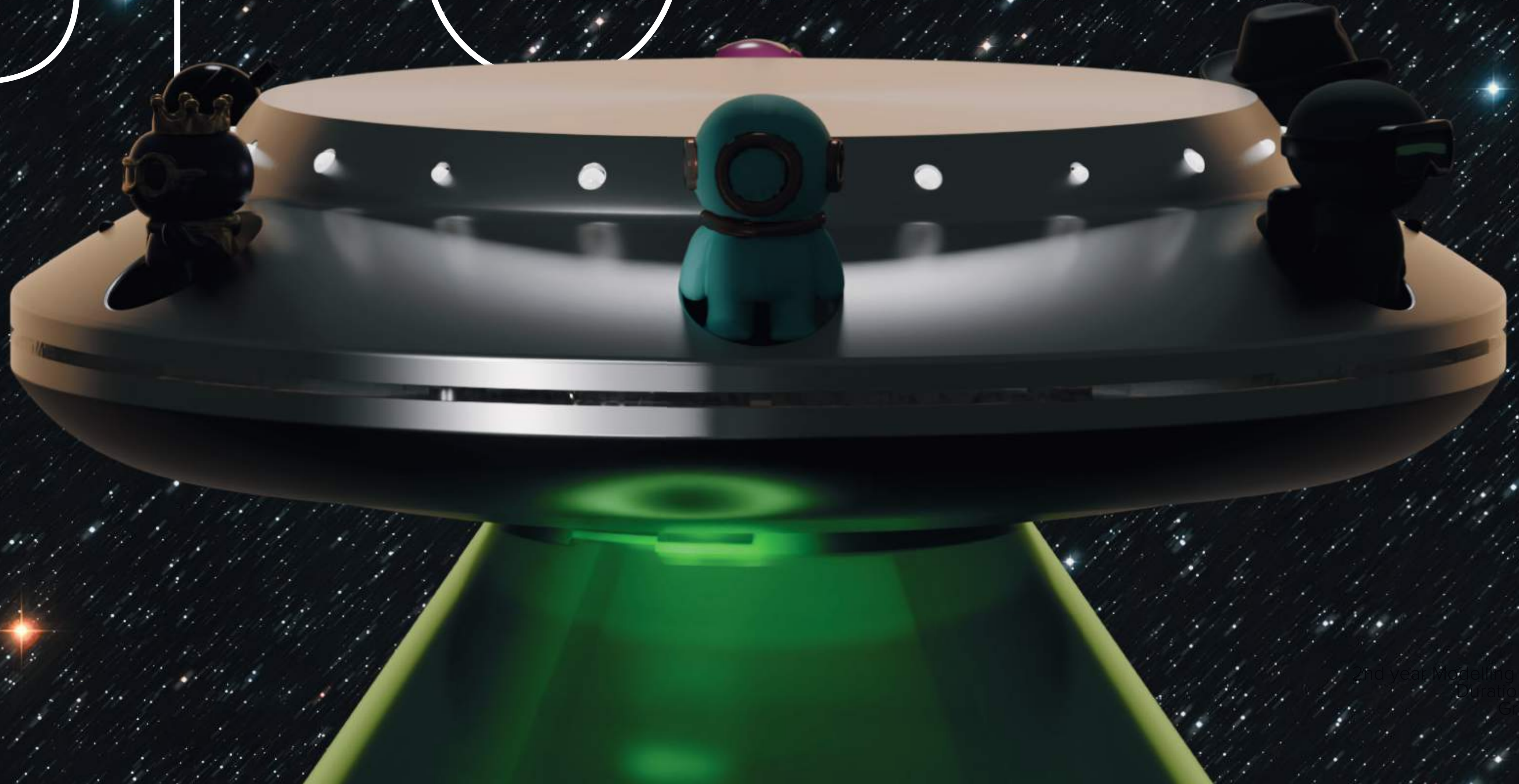


Anodized Aliminum
NCS S 5020-R60B





UFO



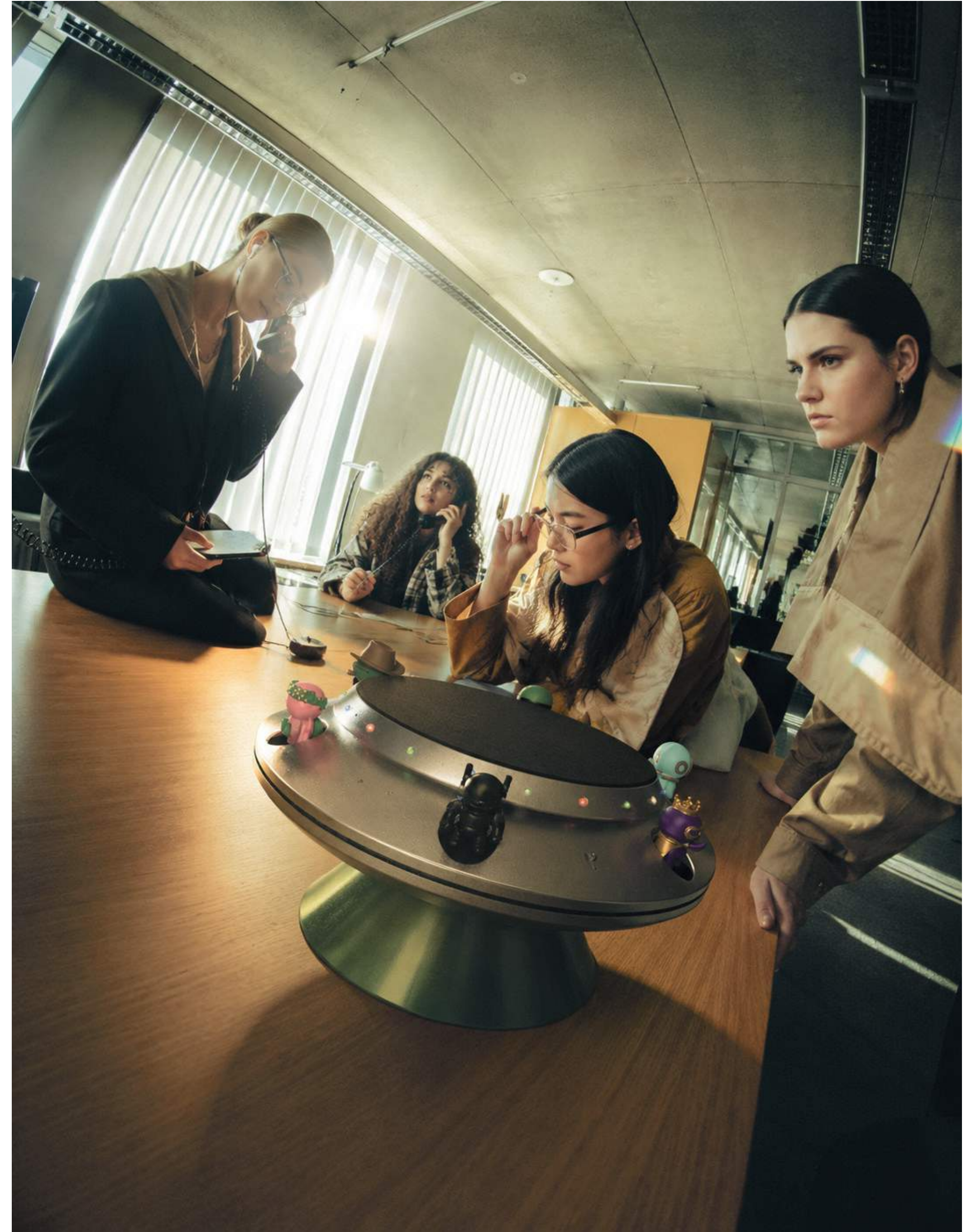
Brief

Get inspiration from existing games and develop a brand new game based on the Arduino skills. Research about what is already on the market and propose your own different concept, keeping in consideration the realisation process.

Role

Research · concept development · CAD modeling · electronics prototyping with Arduino · physical prototyping · technical drawings

51



01

Digital games often **create fast engagement**, but they lack the **physical tension, touch, and shared table presence** that make group play memorable. A hybrid game can use electronics without losing the social and tactile qualities of a board game.

02

Players stay **more engaged when the game combines chance, time pressure, and sensory feedback**. Randomized LED selection, sound cues, dice outcomes, and a countdown create suspense while keeping each round unpredictable and replayable.

03

Group games become stronger when players are not only following rules, but performing together. The UFO theme, character pawns, object search, and timed challenges turn the game into a shared theatrical experience, where humor, competition, and physical action become part of the play.



Creating an interactive group game where players go round by round spinning the wheel. Whatever number the arrow lands on determines the heaviness of the object they have to find in a certain time. If a player underguesses or overguesses the number the points that are over or under will get deducted. The player with the most numbers win.

Design Deliverables

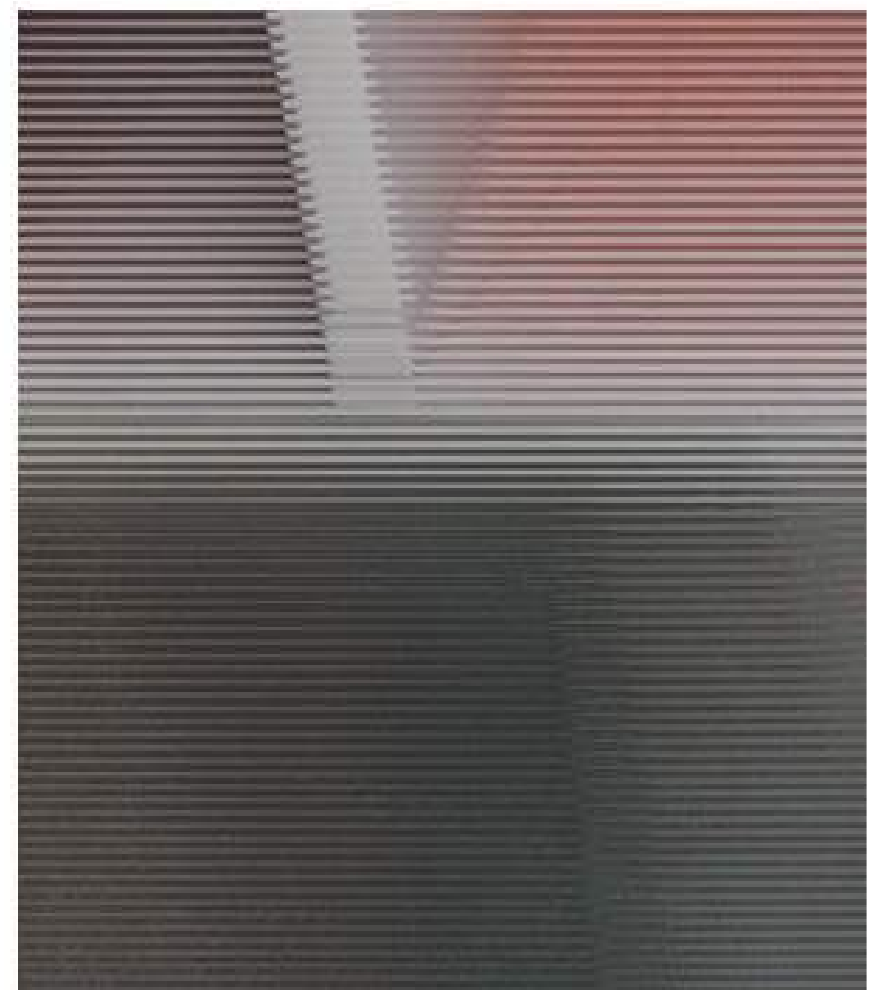
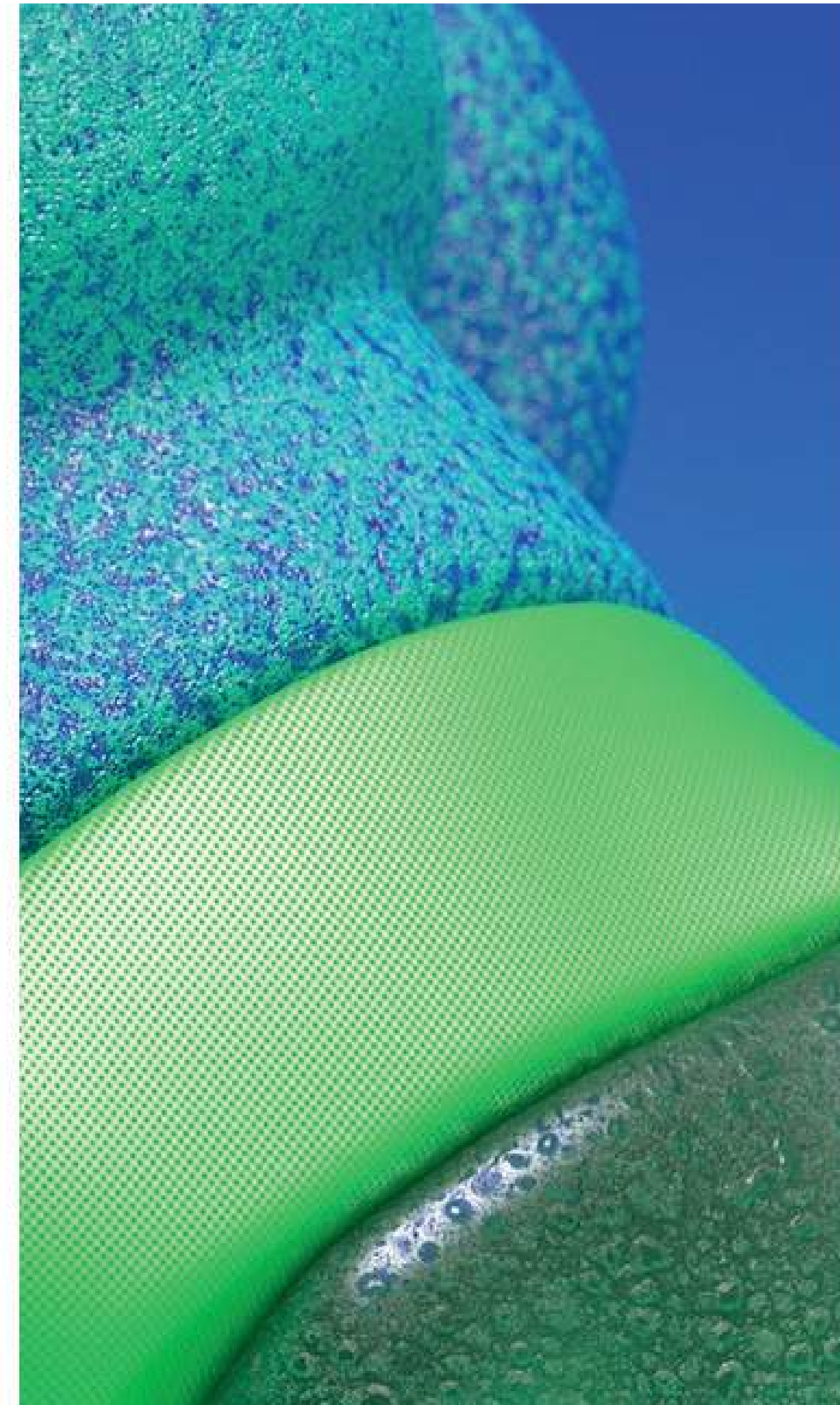
- A physical interactive game prototype combining tactile play with digital feedback.
-
- A complete game system including object design, character pieces, rules, and interaction flow.
-
- A working Arduino prototype testing light, sound, movement, timing, and player response.
-
- A modular 3D-printed body developed for assembly, tolerance control, and electronic integration.

Moodboard

53

DERIN YENICE

The UFO moodboard builds a **visual language around retro-futurism, arcade culture, and playful space exploration**. The direction combines metallic surfaces, glowing details, saturated cosmic colors, and toy-like forms to create a world that feels mysterious but accessible. References from sci-fi objects, game interfaces, spacecraft details, and collectible figurines helped define a design language that is bold, immersive, and slightly surreal. The **goal was to make the product feel like an object from another universe, while still keeping it readable, tactile, and engaging as a physical game experience**.



UFO

UFO is a **fast-paced, interactive game** where **players act as intergalactic scavengers** racing to collect objects that match **bizarre alien themes**. Powered by a physical UFO game base, players must think fast, act faster, and outwit their rivals.

With this game, we aim to reach young adults and offer an experience where they can freely choose how to live out their characters. It's a new and exciting way to enjoy quality time with friends and family—completely disconnected from the influence of social media.





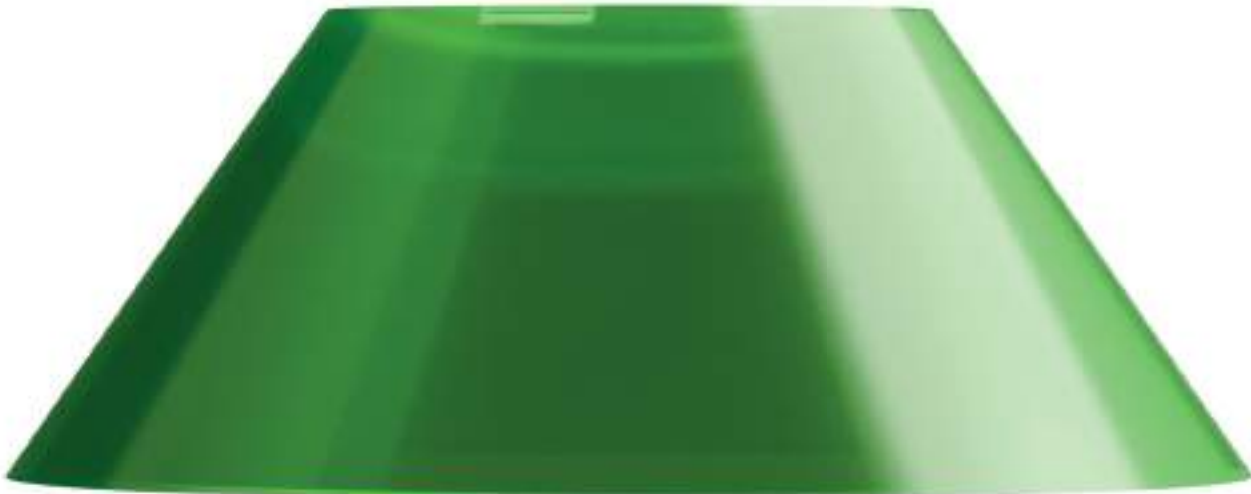
1. After a player **spins the wheel** and rolls the dice , the **45 second timer will start.**
- 2.All players **search for an object that matches the concept and weight** from that round before the **TIMER** runs out.
3. When **time is up, everyone returns and places their object on the UFO scale.**
4. Players **who fail to find an object or break the round's rules** are eliminated for that round
5. Players who succeed **earn points based on how close their object is** to the exact target weight
6. Points are **recorded ON A PAPER** and a new round begins with all players **back on the UFO.**
7. After the game has been determined finished by the players, the **player who has the most amount of points will win.**

The game **components were produced using FDM 3D printing technology**. Each part was designed with integrated bosses for screws and printed in four separate sections featuring interlocking lips, allowing precise alignment and secure assembly post-printing

The Game



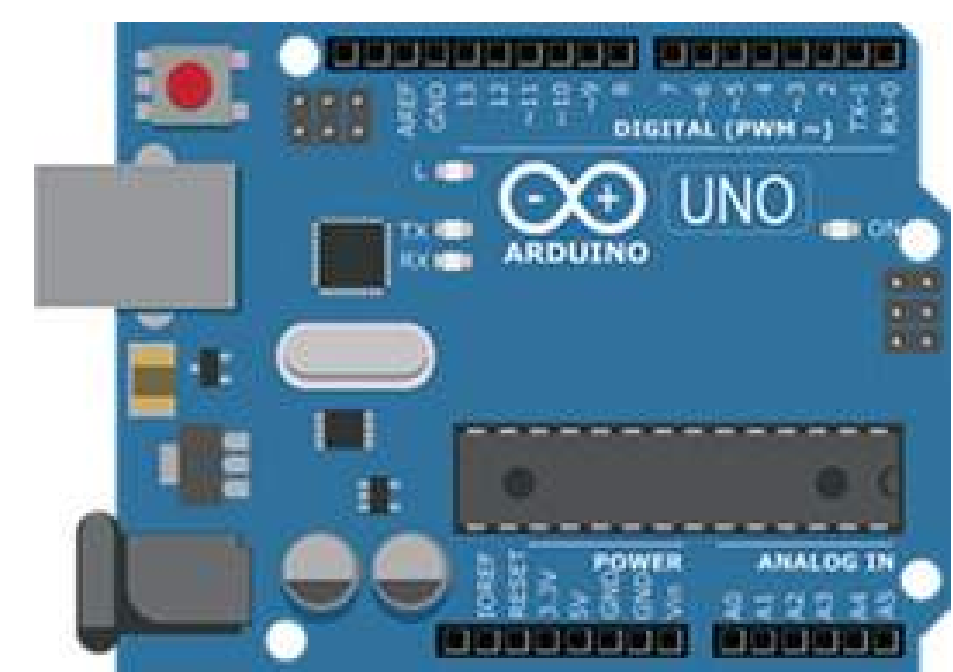
Stand



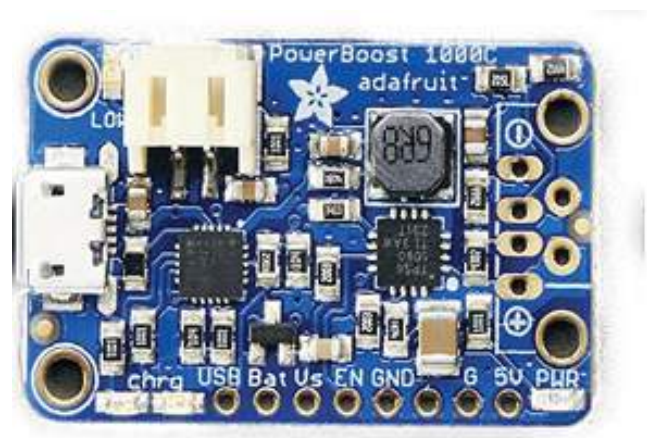
Pawns



The game components were produced using FDM 3D printing technology. Each part was designed with integrated bosses for screws and printed in four separate sections featuring interlocking lips, allowing precise alignment and secure assembly post-printing



Arduino UNO



Ada Fruit charging unit



Lipo Battery



LED strips



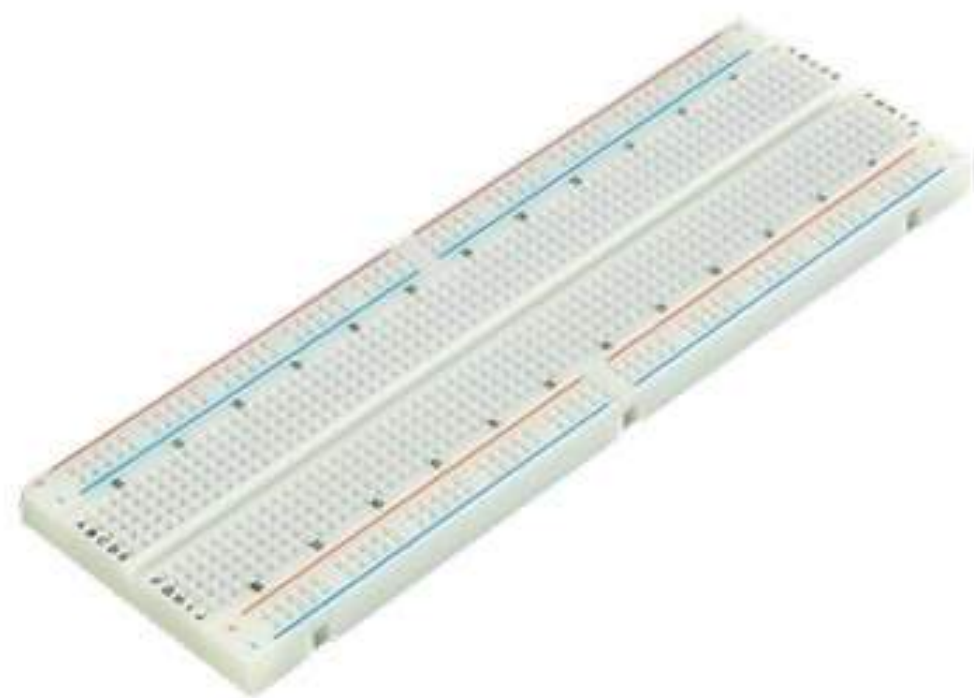
Elegant Model



Jumper Wires



Digital Load Cell Weight Sensor



Breadboard



10K/330 -Ohm Resistors



Reed Switch

Base Module

The Scale

The main UFO diameter was defined to create a clear playing area while keeping the object compact enough to be handled and placed on a table.

LED's

The LED ring creates the main visual feedback of the game. It guides the player during turns, shows the active phase, and reinforces the sci-fi atmosphere.

Middle Seperation

This internal layer organizes the electronics and separates the visible playing surface from the components below. It helps control spacing, wiring, and assembly.

Bottom Part UFO

The bottom part works as the structural base of the device. It holds the electronic components, battery, wiring, and supports the layered assembly of the UFO.



Top Part of UFO

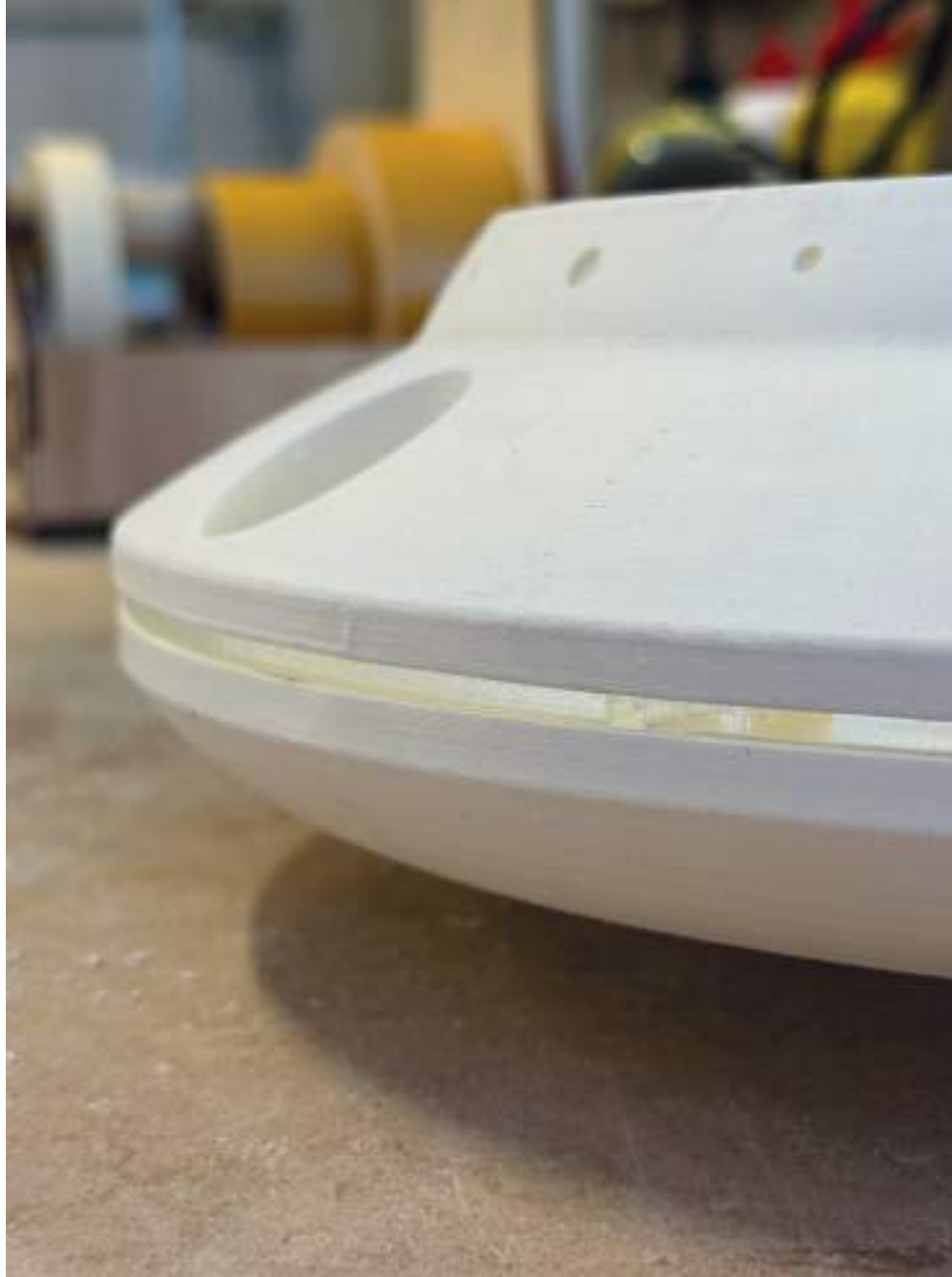
The top shell gives the object its UFO identity and hides the internal electronics. Its openings were designed to align with the LEDs, buttons, and interaction points.

Magnetic Sensors

The magnetic sensors detect the interaction between the pawns and the board, allowing the game to respond physically to the players' movements.

Plexi Part

The transparent plexi layer protects the internal components while allowing the LED light to pass through. It also creates a cleaner separation between the mechanism and the exterior body.

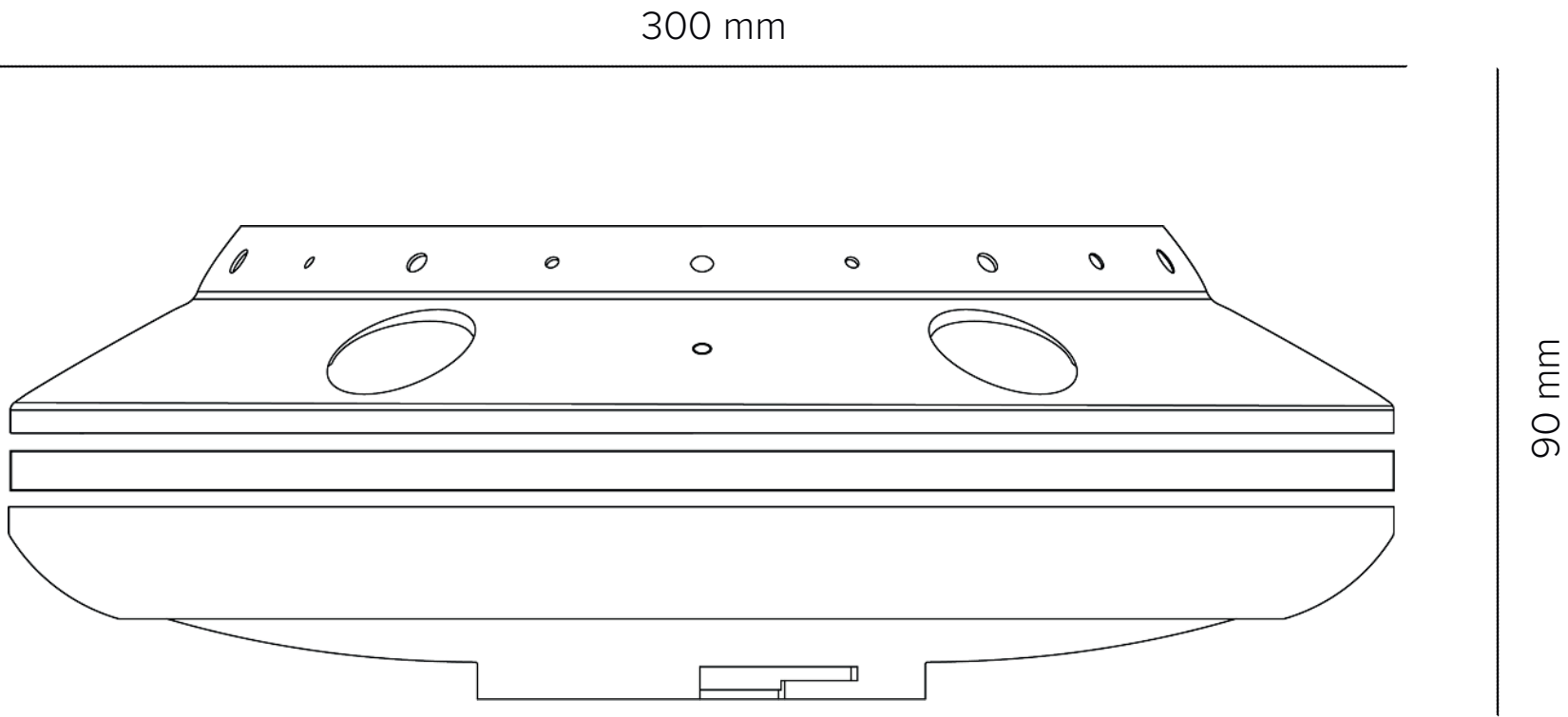


The development process focused on testing the UFO game as a physical, playable object. The UFO body was produced through FDM 3D printing and divided into four separate parts to make assembly easier and to control the tolerances between layers, openings, and moving components. The character pawns were printed with a cornstarch powder printer, which allowed the small details and rounded forms to be tested more clearly.

During prototyping, fitting and tolerance issues appeared around the layered body, circular mechanism, and small pawn details. These tests helped refine the final geometry, improve the assembly logic, and make the prototype stronger, cleaner, and more playable.



This stage focused on testing the electronic system of the UFO game before integrating it into the final body. The Arduino setup combined LEDs, buttons, sensors, sound components, and the rotating interaction system to check the game logic physically. Since the UFO had limited internal space, several tests were needed to organize the wiring, place the LEDs correctly, and keep the mechanism moving without interfering with the electronics.





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