I'm Björn, and I make engineering desirable.

Profile

Björn Heine

I work at the intersection of design and engineering, turning technical complexity into products that are clear, functional and desirable. Currently working as an Industrial Designer, I develop solutions across scales and industries, from mobility and industrial systems to medtech and consumer products, guiding ideas from early concept to refined outcome.

Development	Visualisation	Digital Tools	Emerging Tools
SolidWorks	KeyShot	Figma	Claude
Rhino	D5	Adobe CC	OpenAI Tools
Fusion 360		Office365	Google AI Tools
Plasticity			Figma Weave



M.A.
Engineering
Design

3 Years
of experience

As Industrial Designer in design studios, research & as an independent designer.

GERMAN DESIGN AWARD NEWCOMER NOMINEE 2024

WGA
WONDER GLOBAL DESIGN AWARDS 2025
GOLD WINNER

Curriculum vitae

Experience

HYVE Innovate GmbH

Industrial Design Associate
January 2025 - Present - Munich

Develop product concepts for international clients, from research and exploration to detailed design. Use CAD, visualisation and physical prototypes to evaluate form, ergonomics and function in collaboration with strategists, engineers and production teams.

arcaiv studios

Managing Partner · Industrial / UI/UX Designer
August 2025 - Present - Stuttgart

Studio management and project coordination from initial brief to delivery. Industrial design, CAD development, prototyping and visualisation, alongside UI/UX design and branding. Responsibility for client communication, proposals and project planning.

German Aerospace Center (DLR)

Thesis Student and Research Assistant
April 2024 - Oct 2024 - Stuttgart

Master's thesis and student research assistant role, combining independent design research with support for ongoing research and development projects and technical visualisation.

RE SMART Invest

Working Student · 3D Visualisation and Web Design
December 2023 - Apr 2024 - Berlin

Interior design and digital staging for real estate, including photorealistic visualisations and floor plans. Development and maintenance of the company website.

Panik Ebner Design

Industrial Designer
April 2023 - Nov 2023 - Stuttgart

Concept development, CAD detailing and physical prototyping for B2B and consumer products, with a focus on form, ergonomics and technical feasibility.

RE SMART Invest

Working Student · CAD and Web Design
October 2022 - Apr 2023 - Berlin

Property surveys, CAD floor plans and support for web design and customer enquiries.

Education

M.A. Engineering Design

Magdeburg-Stendal University of Applied Sciences
Feb 2023 - Oct 2024

B.A. Industrial Design

Magdeburg-Stendal University of Applied Sciences
Oct 2019 - Feb 2023

Skills

Research: Context analysis, product comparisons and translating findings into design criteria.

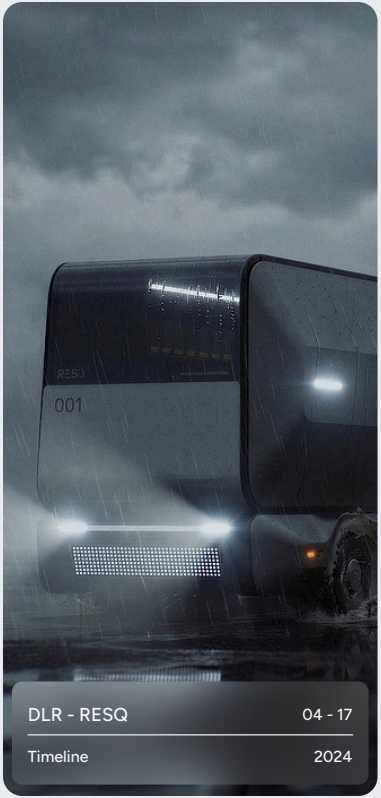
Concept development: Sketch exploration, form studies and coherent product families.

Systems thinking: Connecting user needs, physical components and digital interactions.

Design refinement: Ergonomics, material choices and technical detailing through iterative prototypes.

Communication: Visual narratives, design rationale and collaborative client reviews.

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DLR - RESQ

Concept Design | Transportation

Context

Academic project within the M.A. Engineering Design programme at Magdeburg-Stendal University of Applied Sciences, in collaboration with the German Aerospace Center (DLR), Institute of Vehicle Concepts.

Team & Timeline

Developed with Adrian Wiepcke.
Supervised by Prof. Jan Bäse and Robert Hahn (DLR).
October 2023 to February 2024 · 5 months

Contribution

Co-developed RESQ with Adrian Wiepcke, sharing responsibility equally from early exploration and design decisions through to CAD development.

Brief

Explore how autonomous driving can create meaningful value in heavy-duty transport. Identify relevant applications and translate their requirements into a purposeful vehicle concept.

Concept

Transporting supplies. Supporting responders.

The open brief explored meaningful applications for autonomous heavy trucks. We focused on the transport of essential supplies during disaster response.

Design objective

Reduce the personnel required for transport so responders can focus on people.



Natural disasters



Humanitarian crises



Supply shortages

Supply journey



01

Prepare

Load supplies at the base.

02

Transport

Travel to the assigned relief site.

03

Distribute

Give responders access to essential goods.

04

Resupply

Return for the next delivery.

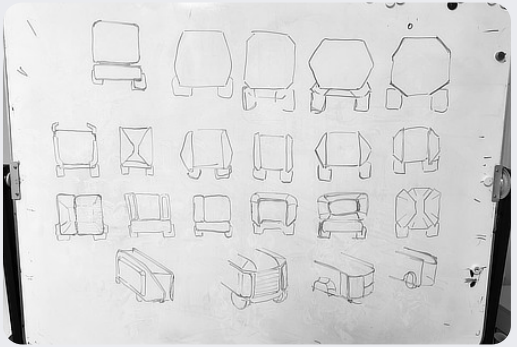
Exploration

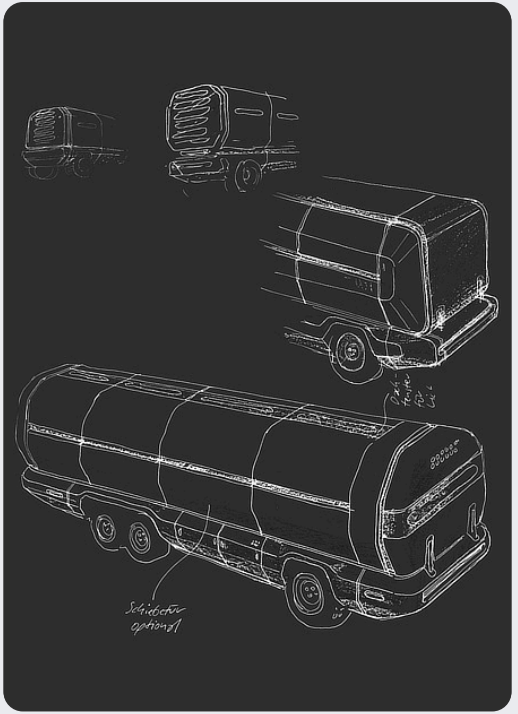
Sketches

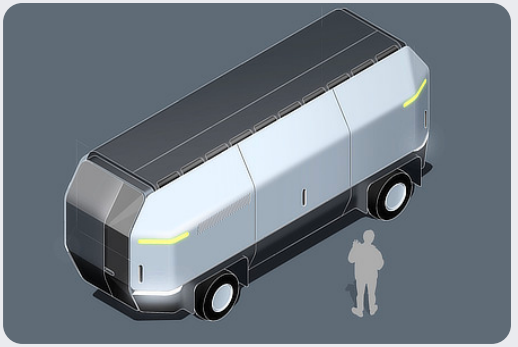
Early sketches explored different silhouettes and ways to express the vehicle's purpose.

Volumes

Quick studies compared stance, scale and the relationship between the main components.









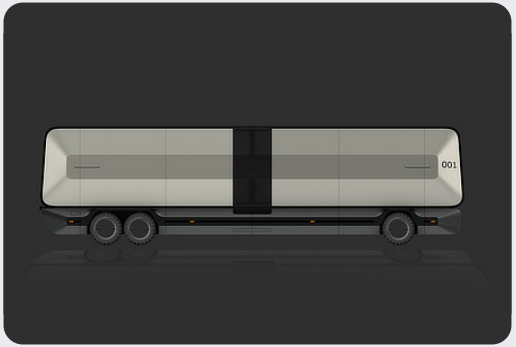


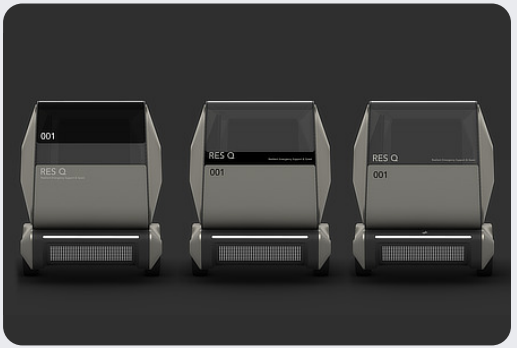
Developing the Concept

Alongside sketching, we explored ideas extensively in 3D and developed the design through repeated iterations.

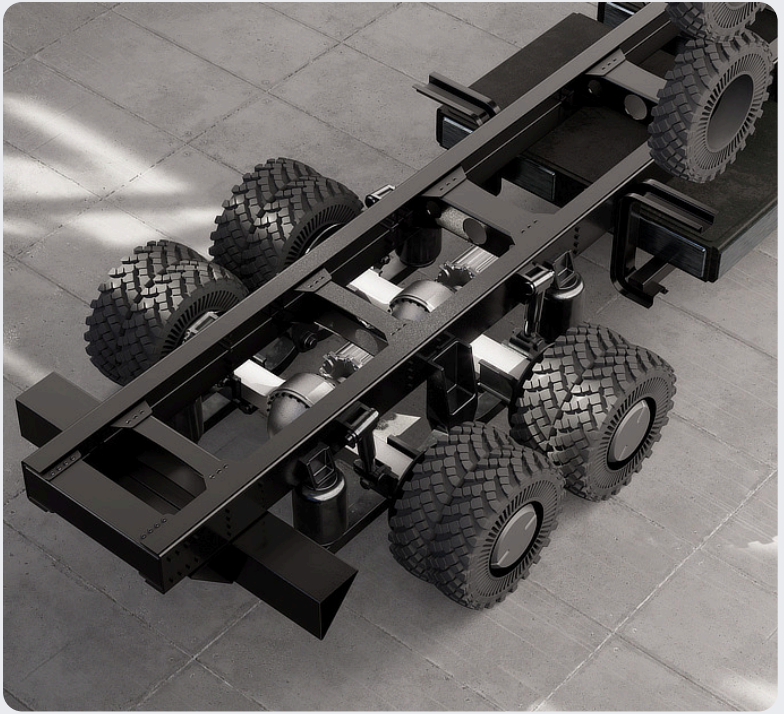


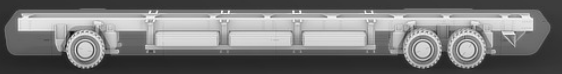






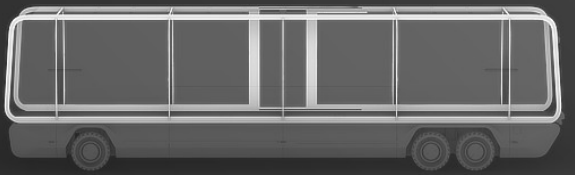
The platform





Independent drive unit

The platform carries the components required for autonomous electric operation.



Adaptable upper body

The concept separates the cargo module from the drive unit to support different configurations.

Interaction



Neutral exterior design

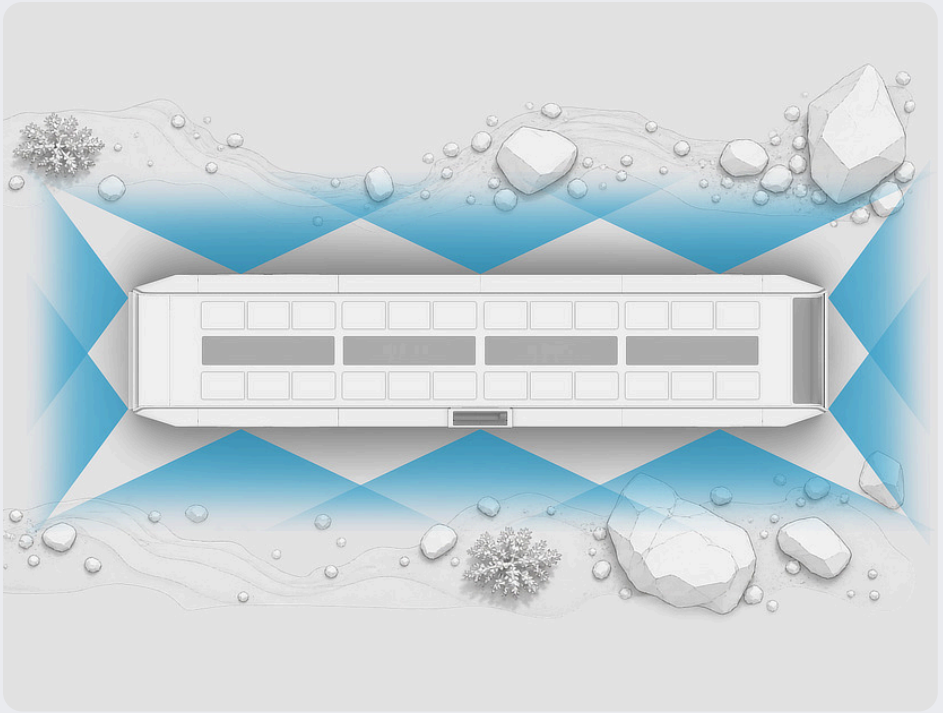
Muted colours establish the main body of the vehicle.

Functional accents

Orange identifies handles, controls and safety equipment.



Sensing integrated into the body





26 LiDAR sensors.
8 cameras.

360° environmental sensing

The proposed layout distributes 26 LiDAR sensors around the vehicle perimeter to capture the surrounding geometry. Eight colour cameras provide complementary visual information, combining depth and image data for a comprehensive view of the environment.

Communication



Vehicle signals

The pixel display communicates warnings and vehicle status to people nearby.



Light at the relief site

Integrated floodlights illuminate the area around the vehicle during night operations.

Access



Personnel entrance

Side access with an extending step.



Side loading

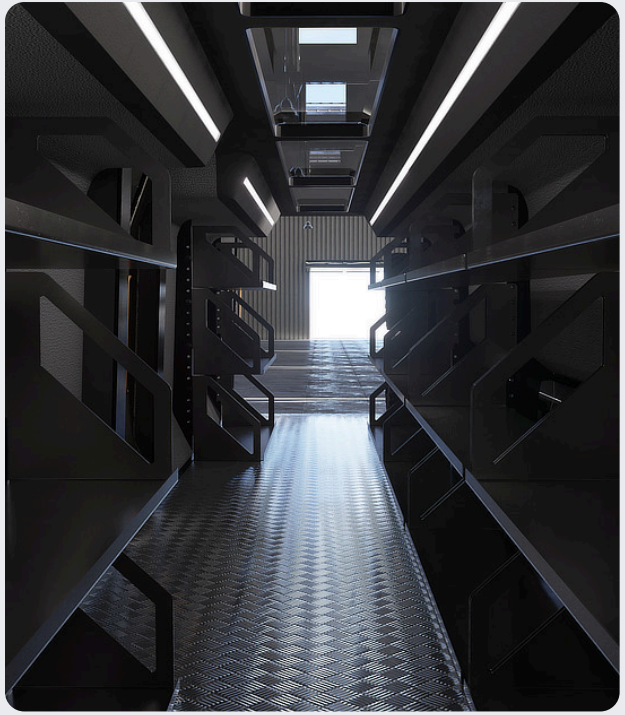
Direct access to goods without entering the vehicle.

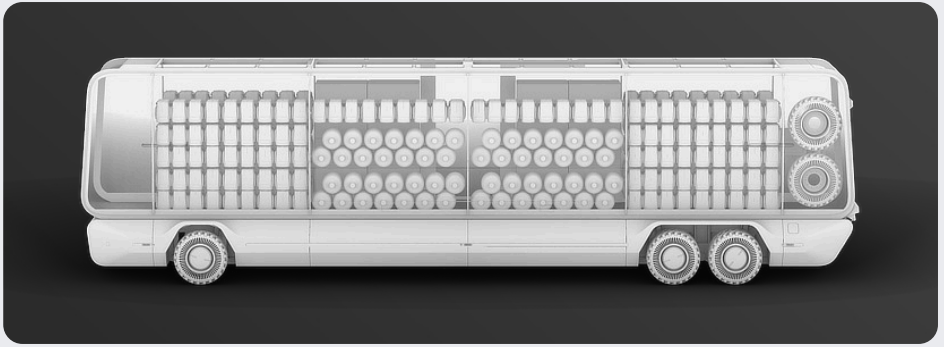


Rear lift

A lifting platform for heavy or bulky supplies.

Organising essential supplies







Flexible storage

A shelving system combines organised supplies with space for larger goods.


001
RESQ
001

Outcome



Project outcome

A vehicle concept connecting modular architecture, supply handling and interaction with people.

Intended value

Reduce transport demands on responders.
Adapt the cargo body to different supply needs.

Reflection & next steps



Key learning

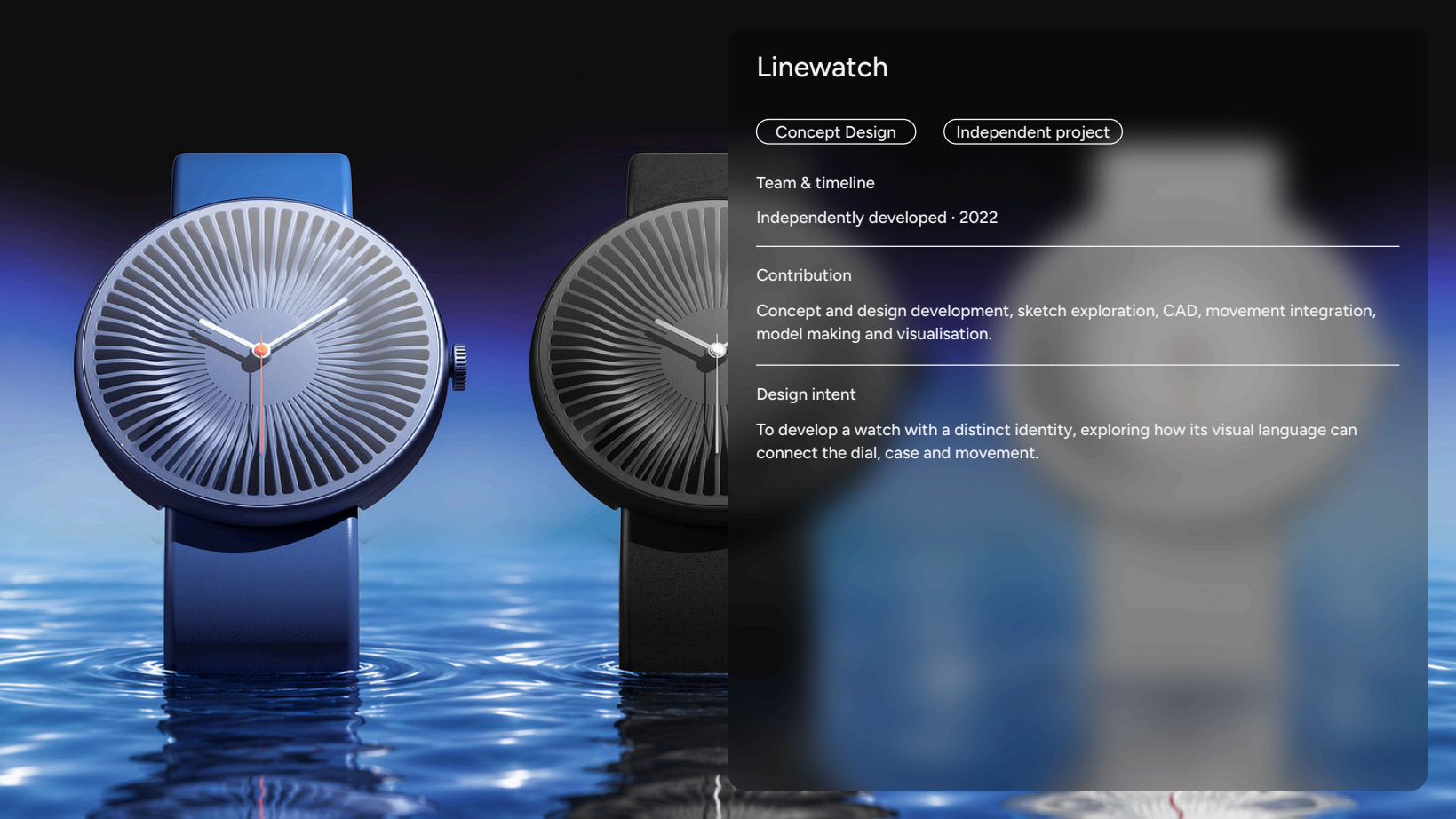
Designing an autonomous vehicle with few established conventions offered considerable freedom, while demanding rigorous time management and a focus on function and practicality. My strongest learning concerned product semantics: without a driver to explain or assist, the vehicle itself must communicate its behaviour, make interactions understandable and guide people through use.

Trade-off

As a research concept, RESQ prioritised functionality and manufacturing feasibility. Cost and commercial viability remained outside the scope. This allowed us to explore the concept freely, while recognising that economic constraints could substantially reshape the design.

Next validation

The completed concept was submitted to DLR and Magdeburg-Stendal University for further evaluation. The design institute exhibited the 3D-printed model at several trade fairs as a demonstrator to spark interest in further research. DLR is considering project insights for subsequent work, beyond my involvement. Further development would require an economic assessment and deeper engineering, particularly of the drivetrain, which remains at concept level.



Linewatch

Concept Design

Independent project

Team & timeline

Independently developed · 2022

Contribution

Concept and design development, sketch exploration, CAD, movement integration, model making and visualisation.

Design intent

To develop a watch with a distinct identity, exploring how its visual language can connect the dial, case and movement.

Concept

A line becomes a watch

Repeated lines form a sculptural dial whose depth and appearance change with the light. I developed this visual idea alongside the case proportions and movement integration, aiming for a coherent watch rather than a dial concept alone.

Starting point

What happens when a line becomes the defining feature of a watch rather than a decorative detail?



Finding a visual rhythm



Exploring the line

Early studies explored different line patterns, dial compositions and proportions to find a distinct visual direction.

A structure emerges

The lines converged toward the centre, turning a graphic idea into a sculptural dial.

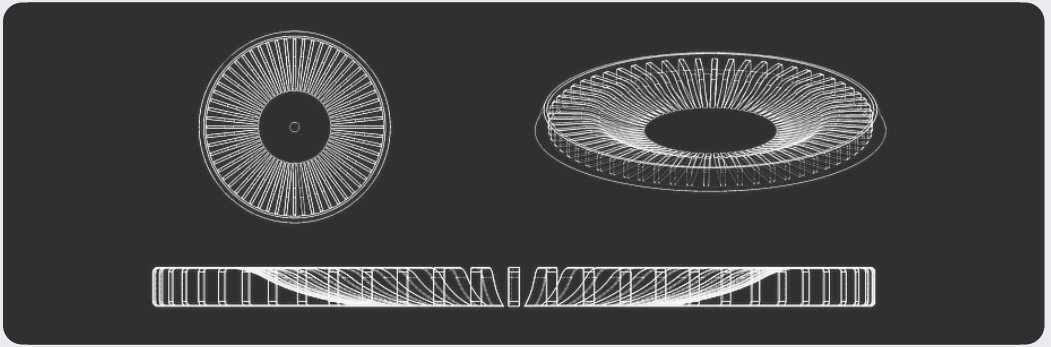
Shaping the line in 3D

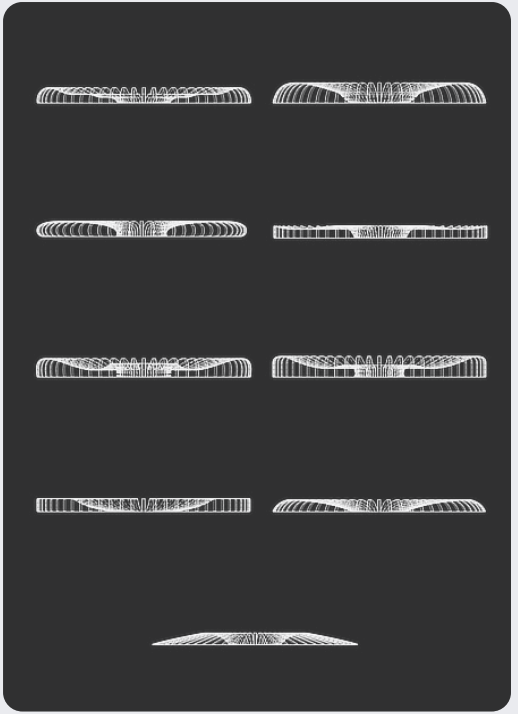
Dial geometry

CAD studies refined the depth, curvature and spacing of the radial structure.

Overall balance

The dial, hands and case were developed together to balance visual depth with clear proportions.





The Design



Sculptural dial

Curved radial ribs create depth and shifting highlights across the watch face.



Quiet silhouette

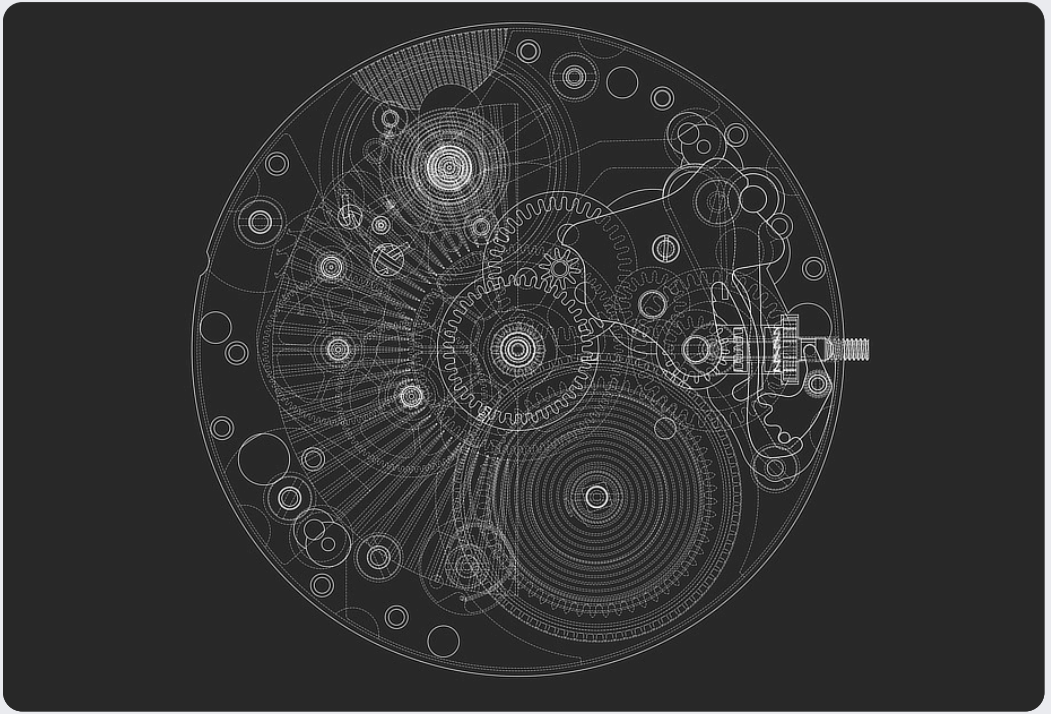
A restrained case, hands and strap keep the dial at the centre of the design.



Three expressions

Navy, black and white give the same geometry distinct characters.

The Movement



A personal challenge

The movement explores how mechanical components interact within the watch.

Scope of the study

Watchmaking demands exceptional precision. This design has not been verified as a working movement.



A view into the movement

Movement as part of the design.

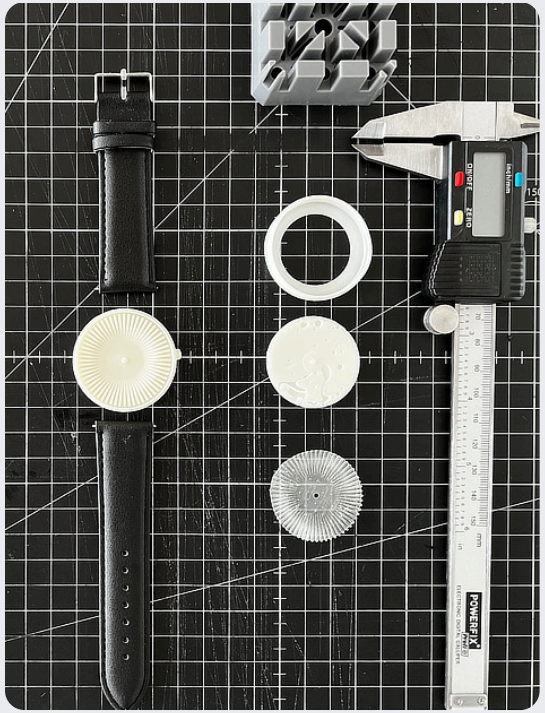
The transparent caseback reveals the layered movement. A cut-out rotor leaves its gears, bridges and jewel settings visible, giving the rear of the watch a distinct character.

Material direction

A sapphire-crystal caseback, PVD-coated stainless-steel case and synthetic ruby bearings would give the concept a durable, refined material palette.



Testing at scale



From CAD to a physical object

The fine dial structure called for a precise manufacturing method. LCD resin printing made it possible to produce and assemble the intricate parts as physical studies.

The process

The printed components were cleaned, lightly finished and assembled into watch models.



Testing at scale



What changes when a design leaves the screen?

The models represent an earlier design stage; the current Linewatch design was developed further in CAD.



Early physical studies

Physical models made the dial’s depth, the case proportions and the overall presence on the wrist easier to judge. These early studies helped inform the project’s later development.

Outcome



Visual signature

The sculptural radial dial turns the original line study into a recognisable watch design, expressed in three colourways.

Beyond the screen

CAD development and early physical models helped assess depth, detail and proportions. The movement remains a conceptual exploration.

Reflection & next steps



Key learning

Without an external brief, Linewatch became a personal and unusually hands-on project. Early prototypes revealed how different proportions can feel in hand than they appear in CAD, prompting adjustments before the final design. LCD resin printing enabled remarkable detail, but demanded more care than FDM.

Trade-off

The watch design is largely resolved, but the custom mechanical movement remains conceptual. Building and validating a reliable calibre exceeds the resources of a private project.

Next validation

Linewatch continues to evolve. A working prototype could use an existing movement or require specialist partners to develop a custom one. Further directions include a simpler quartz version, new colourways and a skeletonised variant.



Dräger Veil Drone

Concept Design · Drone System

Client

Academic project in the M.A. Engineering Design programme at Magdeburg-Stendal University of Applied Sciences, in collaboration with Dräger, based on a Dräger X-Zone brief.

Team & timeline

Concept and design by Björn Heine.
Supervised by Prof. Mathias Bertram.
March 2023 to July 2023 · 5 months

Contribution

System concept, use sequence, drone and peripheral design, component packaging and visualisation.

Brief

Explore automated area monitoring through a drone swarm. Veil Drone is the flying unit within the SwarmSentry system.

Briefing

Rethinking area monitoring

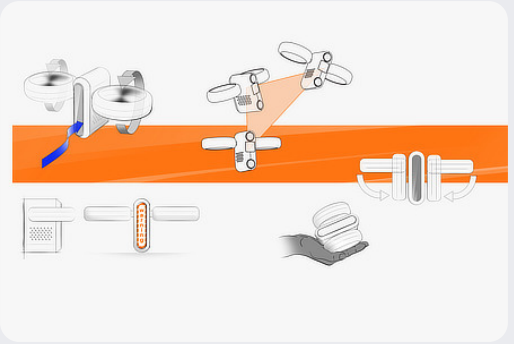
The Dräger X-zone is a portable device for monitoring gas hazards across a work area. In our assessment, its bulky, heavy form and limited connectivity made deployment and ongoing operation demanding: devices had to be carried and positioned by hand, staff had to remain ready to respond to alarms, and units placed on the ground could obstruct pathways.

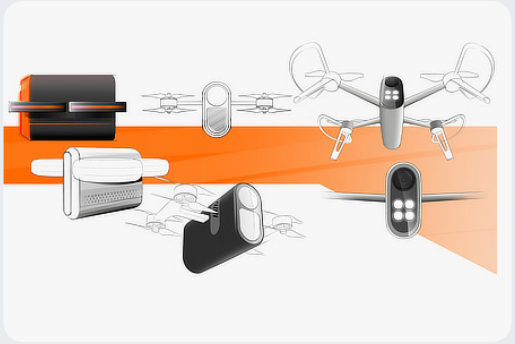
Design question

How might monitoring points be deployed and maintained with less effort on site?



Exploration





Defining the monitoring point

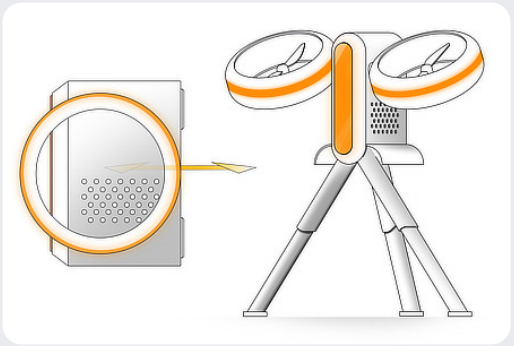
A drone can move a sensor through a worksite. But where and how should it measure?

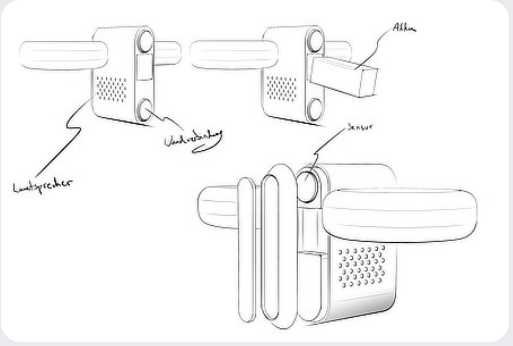
Measuring at rest

For a stable measurement, the drone needs to land and monitor from a fixed position.

Off the ground

A wall-mounted point places the drone at eye level, where its visible, while keeping access routes clear.







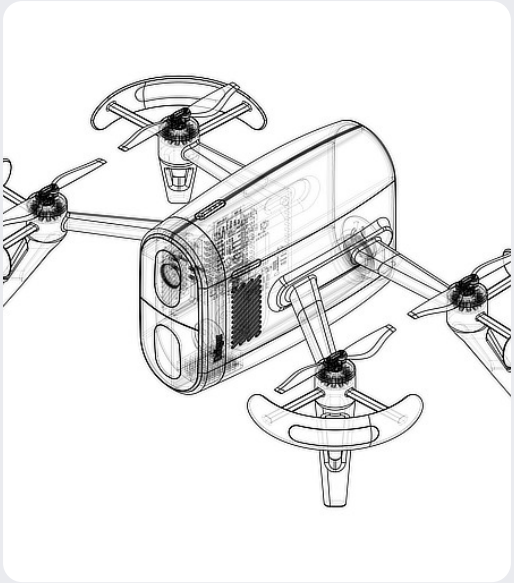
Flying unit

Sketches investigated proportions, protected rotors and how components could fit into a compact form.

Developing the system

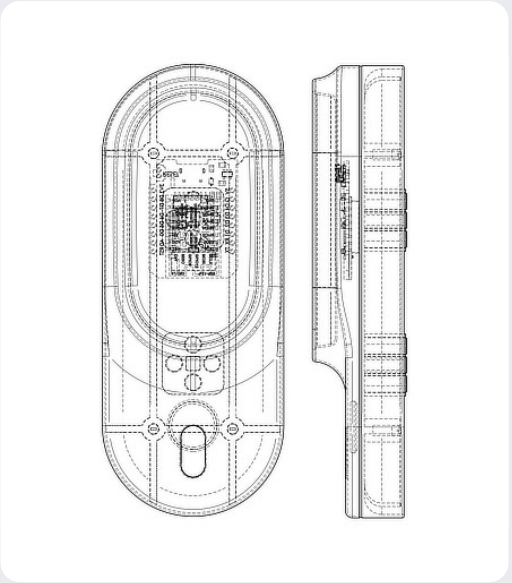
Once the monitoring position was defined, I explored the flying unit and the equipment.

Three parts, one system



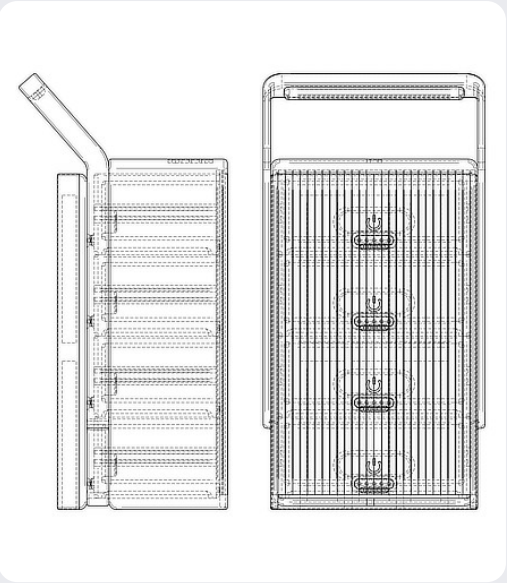
Veil Drone

Veil Drone brings sensors to selected monitoring points through three connected components.



Wall mount

Defines the monitoring point at eye level and holds the drone clear of work and access routes.



Transport & charging hub

Stores, transports and recharges multiple drones so units can be replaced during long monitoring tasks.

Supporting hardware

Transport

The case carries up to four drones to the site and keeps them together between deployments.

Charging hub

Four charging bays prepare the drones for their next task. The case acts as the central hub for the swarm.







Magnetic wall mount

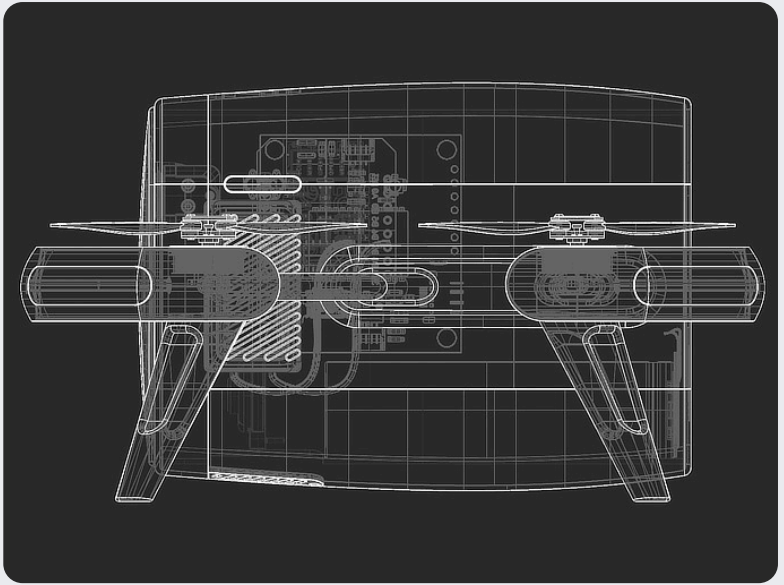
Workers attach the mount to a suitable steel surface. It communicates its location so a drone can fly directly to it, dock and begin stationary monitoring.

Inside the drone



Components

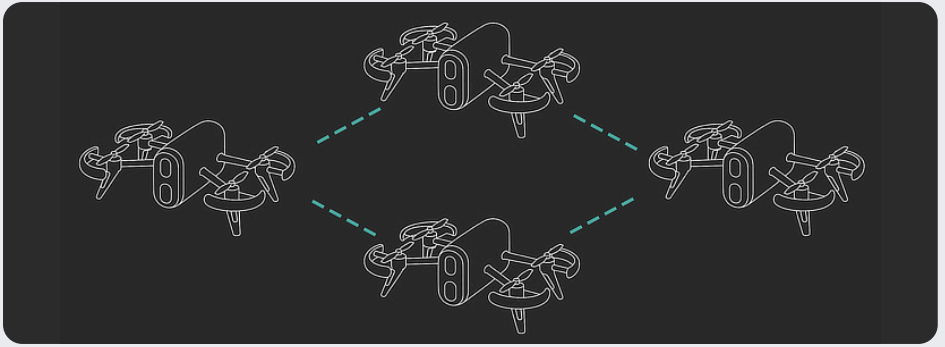
The CAD layout uses real components, including Dräger XXS gas sensors, navigation and communication modules, and wireless charging.



Specifications

The concept targets under 249 g and 45 minutes of flight. Docked monitoring is estimated at 8 hours; drones can swap automatically as batteries run low to maintain coverage.

Communication



The heart of Veil Drone

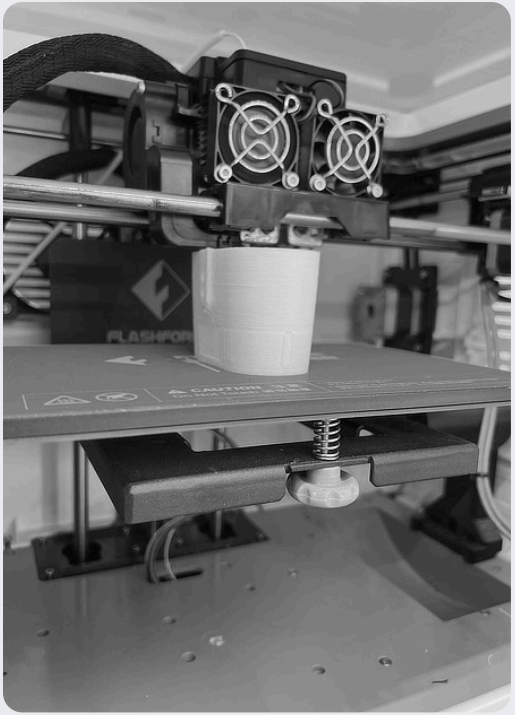
Veil Drone brings the sensor to each monitoring point. The compact XXS family offers fast, selective detection, with variants for different gases and oxygen deficiency.

Connected network

Each drone relays measurements and alerts through the hub, bringing separate monitoring points into one shared overview.



Making it tangible





Making the swarm tangible

A 1:1 appearance model was built from five 3D-printed parts. Additional models presented Veil Drone as a swarm at Hannover Messe 2024 as part of the Kreativ Sachsen-Anhalt campaign.



Outcome



System outcome

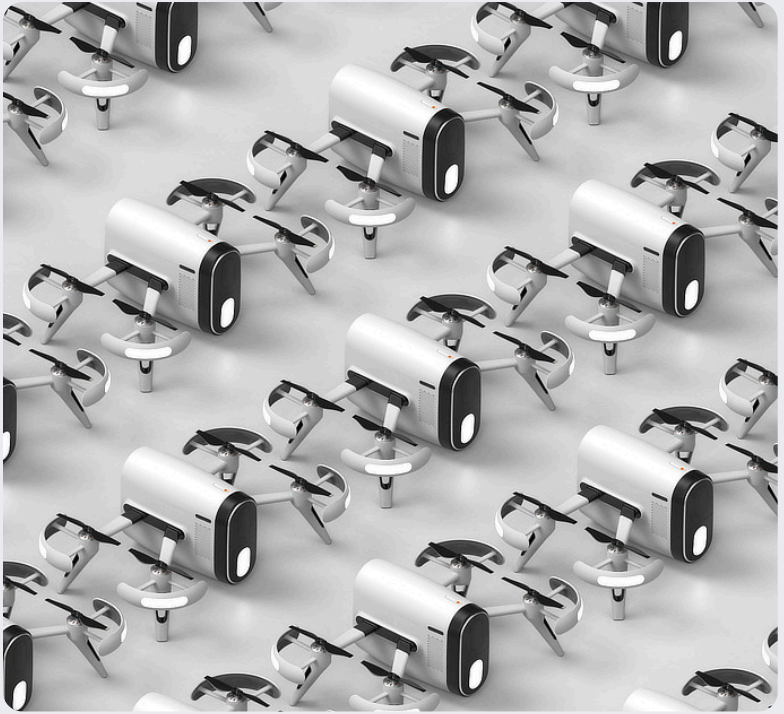
A detailed concept connecting Veil Drone, magnetic wall mounts and a four-drone charging hub, supported by 1:1 appearance models.

Intended value

The system aims to reduce manual setup, keep equipment off the ground and maintain coverage as drones replace one another.


Dräger

Reflection & next steps



Key learning

SwarmSentry challenged me to design a system, not just a drone. I developed requirements for each component and built the drone's technical layout around commercially available parts. Addressing a specific limitation of the existing X-zone made the exploration especially meaningful.

Trade-off

As a future study, SwarmSentry was not intended as a direct X-zone successor. Its potential benefits come with considerable system cost; commercial viability would depend on lower costs and further technical development.

Next validation

The concept was presented and handed over to Dräger´s team in Lübeck, then exhibited at Hannover Messe as part of Kreativ Sachsen-Anhalt. A functional prototype would need to verify gas measurement while docked, reliable docking, autonomous drone exchange and safe operation.



Wortuhr 2.0

Client Work · Home Object

Rethinking a familiar object

A redesign of Homesolutions' word clock, developed to give the product a distinct identity while remaining practical to manufacture and customise.

Client

Homesolutions · commissioned through arcaiv studios

Project

Word clock redesign · 2025

Team

Björn Heine · Adrian Wiepcke · Daniel Glatthaar

Contribution

Led the concept exploration, contributed to CAD development and technical implementation, and independently created the project visualisations.

The Starting Point

A familiar product, ready for a new identity.

Homesolutions commissioned arcaiv studios to rethink its word clock. The challenge was to create a recognisable design that could be manufactured efficiently, adapted to different interiors and developed within a tightly scoped budget.

Focused exploration

With only a few hours allocated to ideation, the process concentrated on distinct, quickly assessable directions rather than a broad design process.



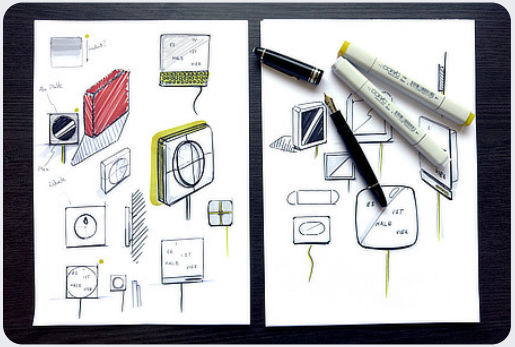
Rapid Exploration

Form studies

The concepts varied the relationship between display, front panel and housing.

Focused process

A tightly scoped budget called for clear options the client could compare quickly.



Orbit



Gradient



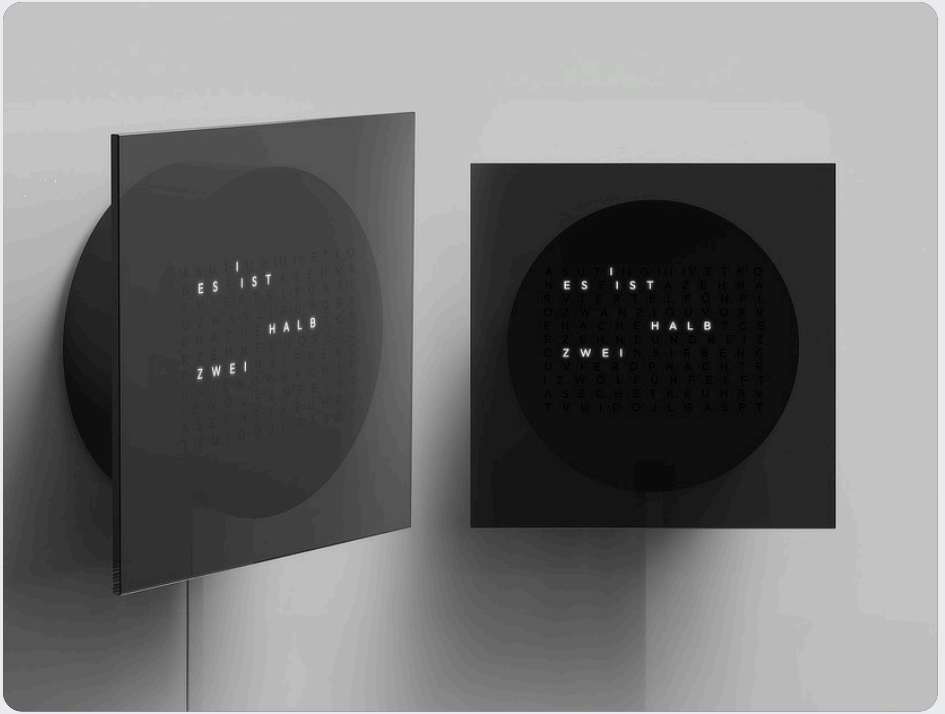
Bent



Core



Choosing Core



A circle gives the square a new identity.

Character

The selected direction was named Core for its circular central body. Set behind a square front panel, it breaks with the familiar word clock form and gives the product a distinct character. It was also the client's preferred concept.

One structure, many expressions.

Flexibility

The cylindrical housing and flat acrylic panel are straightforward to manufacture. Exchanging the front panel allows for different colours without redesigning the underlying product.

One Form, Four Expressions



Colour studies

Blue, amber, coral and smoky black were explored as acrylic front panels. Each gives the clock a different presence while keeping the circular body and word display consistent.

Depth and contrast

The dark core remains visible through the tinted panel, adding depth to an otherwise simple composition.

Designing the Dial





Layout

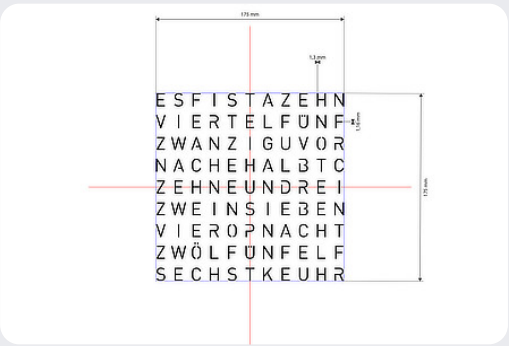
Different letter arrangements, line lengths and minute indicators were tested to find a clear way to read the time.

Proportion

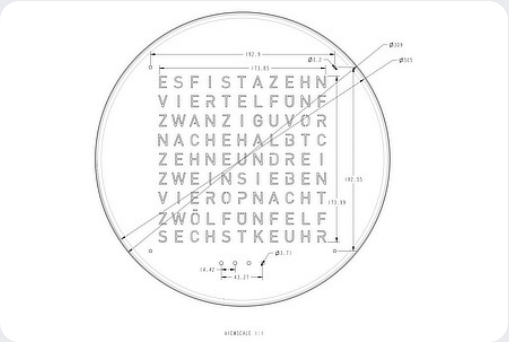
Variations in type size and spacing showed how strongly the word matrix shapes the balance of the circular face.

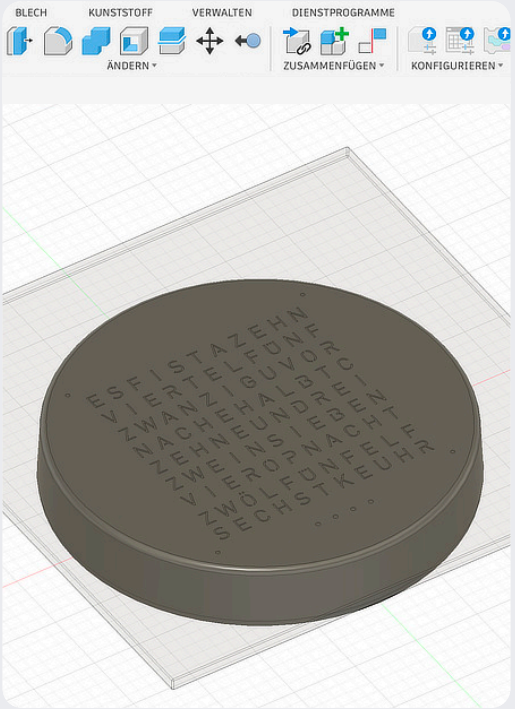






From Concept to Construction



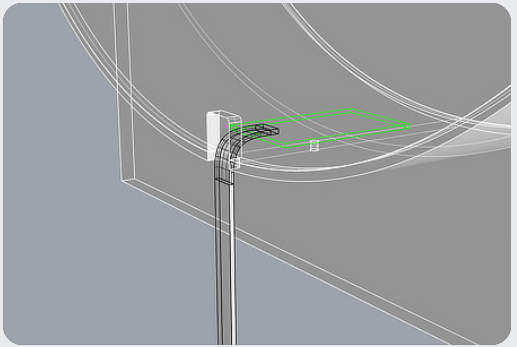


CAD development

The CAD work defined dimensions and the fit between housing, display and front panel. These details were refined alongside the visual design before prototyping began.

Two-part design

The cylindrical housing accommodates the clock's internal components, while the flat acrylic panel forms its visible front. Separating the two keeps the construction straightforward.



From Screen to Sample



The details came into focus.

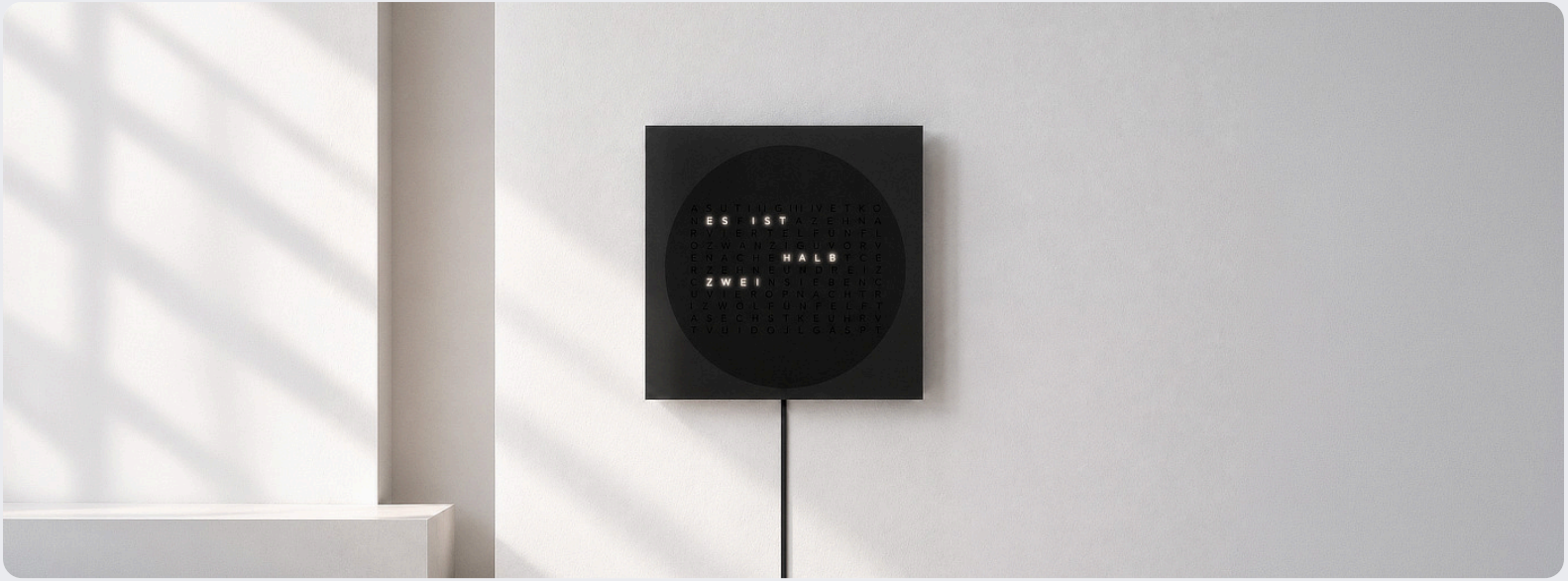
Prototypes tested the clock's proportions, surface and illumination at real size. The backprint was refined to keep the front dark when unlit while making the words clear when illuminated.







Outcome



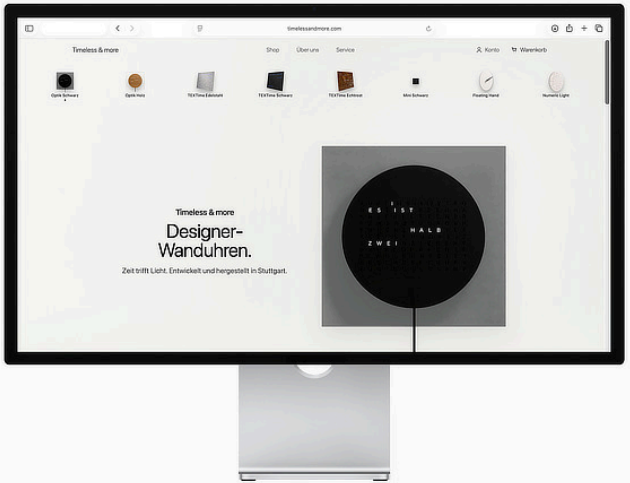
Pre-order

The redesigned word clock has been presented and is now available for pre-order.

Final handover

The studio is completing the final product visualisations and marketing materials before handing them over to Homesolutions.

Reflection & next steps



Key learning

A limited budget demanded clear priorities: move quickly from a promising direction into development, then test extensively. Reworking the familiar word clock format also gave Homesolutions a more distinct product identity.

Trade-off

The short ideation phase left little room for broad exploration. Committing to a direction early, however, created more time to refine the design through CAD and prototyping.

Next validation

The clock is available for pre-order, and client feedback has been very positive. Final visualisations and marketing materials are being completed for handover.

Current Position

HYVE

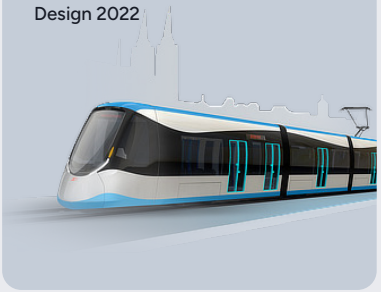
As an Industrial Design Associate at HYVE, I work across industries and the full development process. My role ranges from focused visualisation tasks within larger teams to independently leading projects from brief to handover.

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arcaiv studios

As Managing Partner at arcaiv studios, I primarily work in industrial and UI/UX design. Founded together after university, the collective brings independent designers and engineers together on projects spanning technical product development, digital interfaces and branding.

Light rail Regensburg at Panik Ebner Design 2022



Designing across scales

Big Systems & Fine Details



MED-EL
Bora
Everllence

A selection of clients, with many more across different industries.



Side practice

arcaiv studios

A collaborative studio of independent designers.

Information

More in person ;)

Some of my most recent work cannot be circulated with this portfolio. I'd be glad to show you more and talk through my role and process in a personal conversation.

Björn Heine
Industrial Designer
Munich, Germany

bjoern.heine@icloud.com
+49 151 54031806

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Portfolio Purpose

This portfolio presents a curated selection of projects, highlighting my approach, experience and selected areas of expertise. It does not represent the full scope of my professional work.