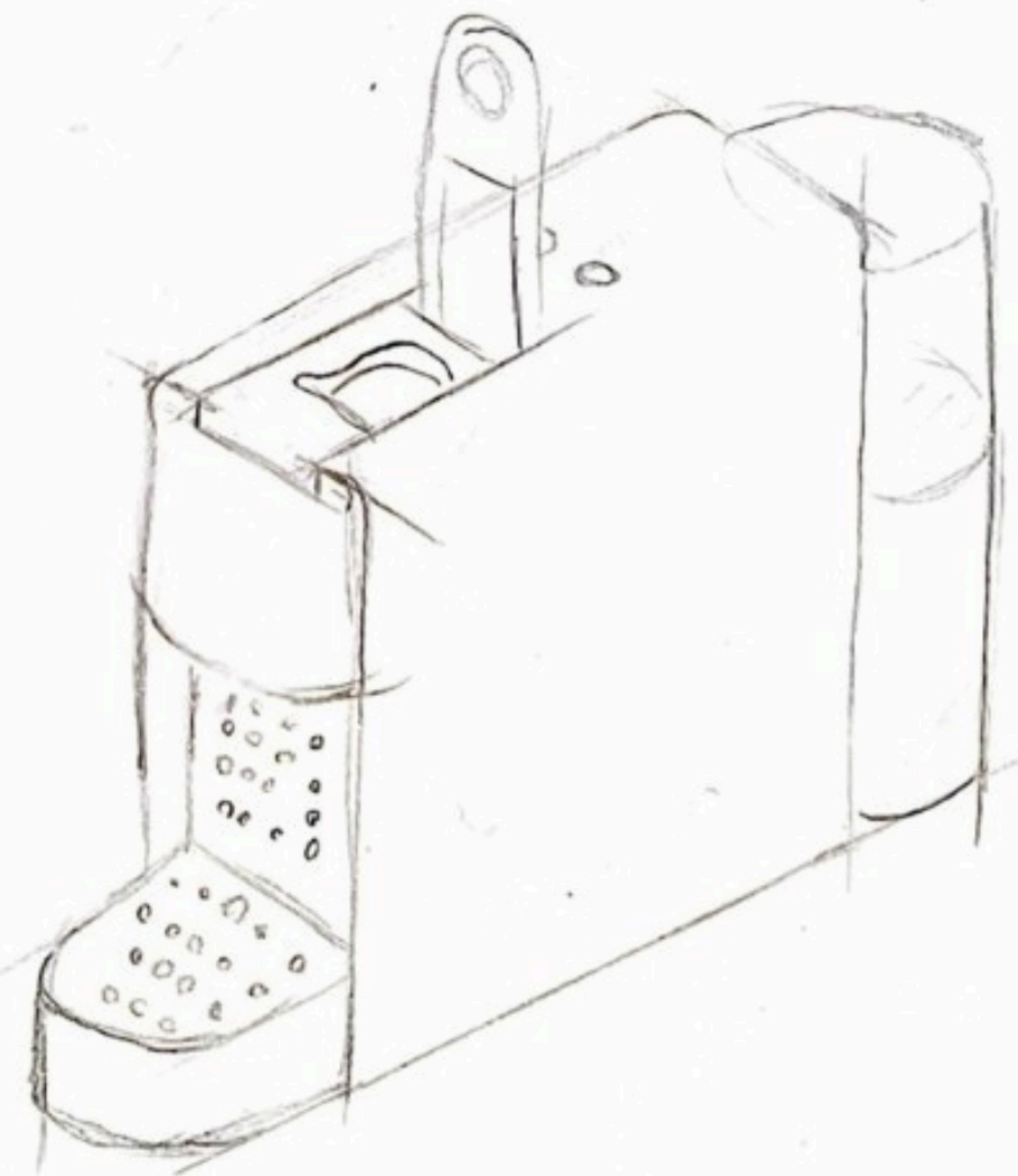


DESIGN AS
PRODUCTS
SERVICES
SYSTEMS &
EXPERIENCES

Marijken van Strijen

202500863



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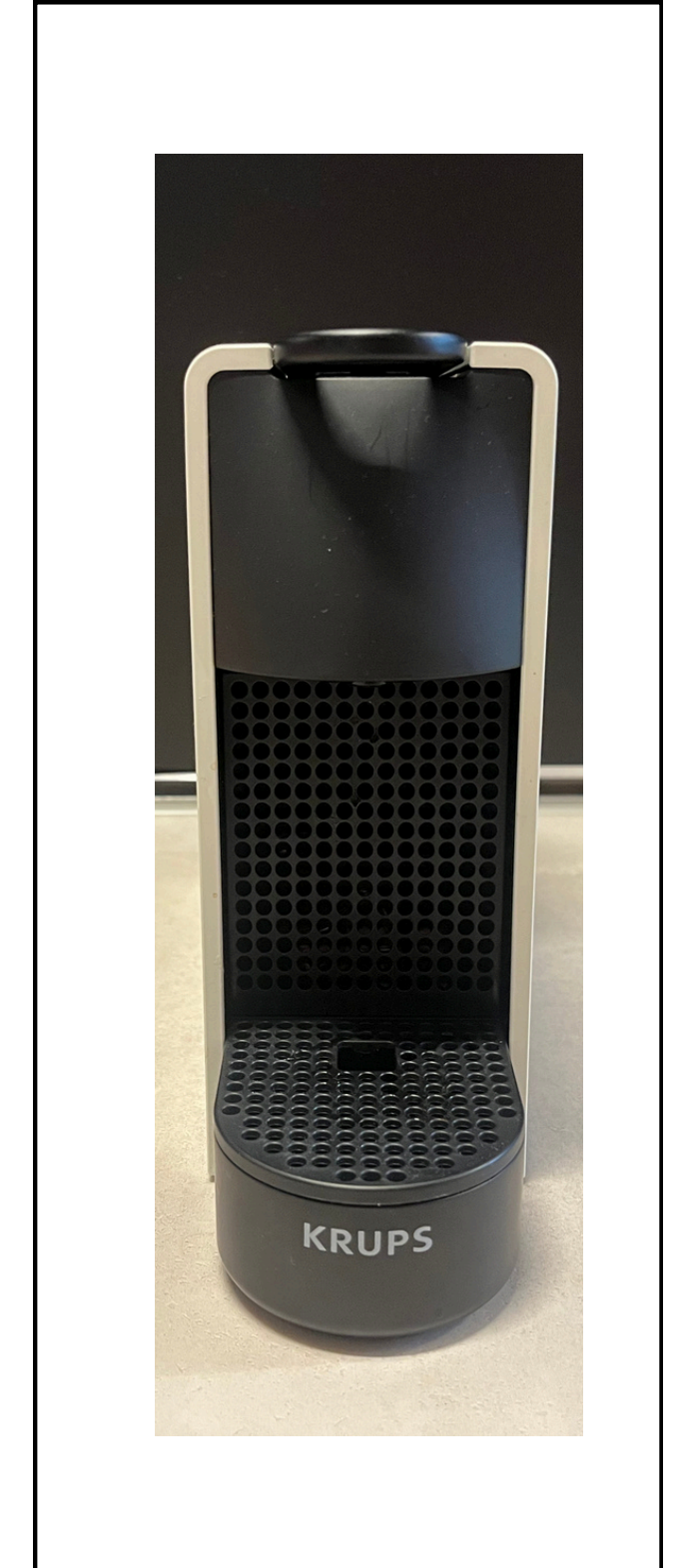
24

Nespresso Essenza Mini- Coffee Machine

Design

The Nespresso machine is a compact, single-serve coffee maker designed to brew an espresso or lungo at the press of a button. Using coffee capsules. This machine has four different components: the water tank, the body, the espresso-cups compartment, and the nozzle with a platform where you place your cup. The water tank can be removed and filled by opening the top lid. The cups compartment opens at the top, the cup can be inserted and the handle can be closed again. the platform below the nozzle can also be removed for cleaning and throwing out the cups.

This machine features 4 different components a water tank, capsule compartment that opens and closes at the top and brewing system enclosed in a sleek casing. It combines shiny and matte surfaces and has a modern, minimalistic look; Showcasing it's ease of use.



Why this product

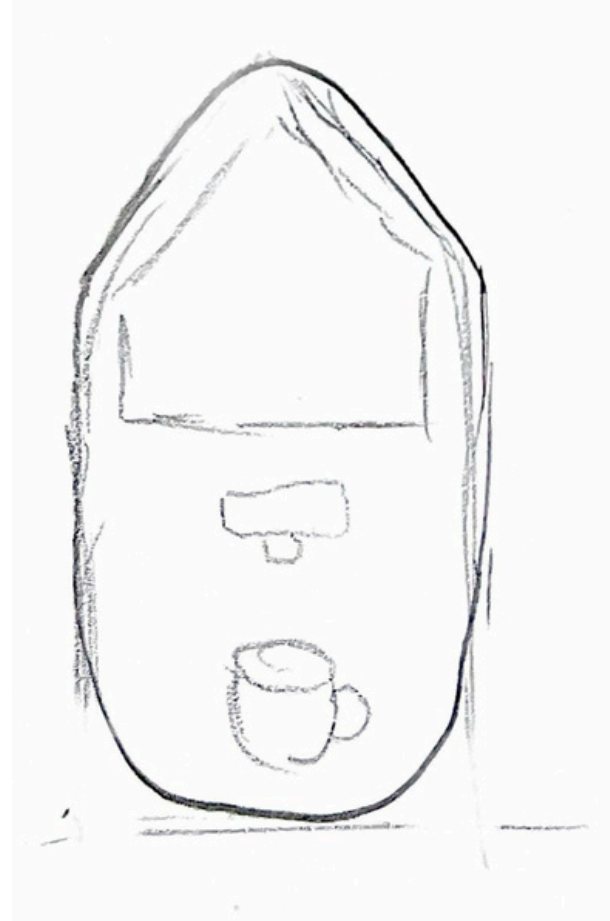
The Machine reflects a modern design language — sleek lines, minimalistic controls, and a compact form that fits perfectly into today's kitchens. Its design feels evolved: simple enough for anyone to use, yet easy to integrate and blend into a kitchen without drawing unwanted attention. What makes this machine especially interesting for this project is that it has always been redesigned with modern aesthetics in mind. I chose the Nespresso machine because it's something I use almost every day, and looking at it through the lens of different design eras will be an interesting change of mindset. Exploring those design shifts will be a way to see an everyday object in a completely different light while thinking about how style, culture, and technology influence the things we use.



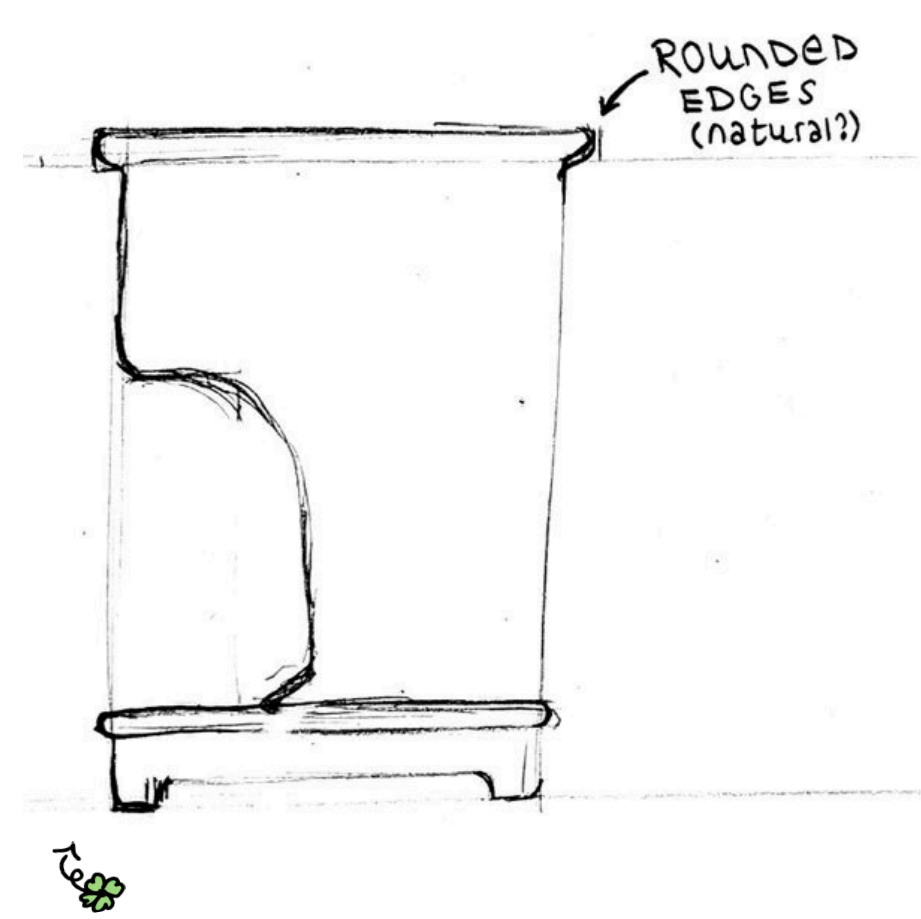
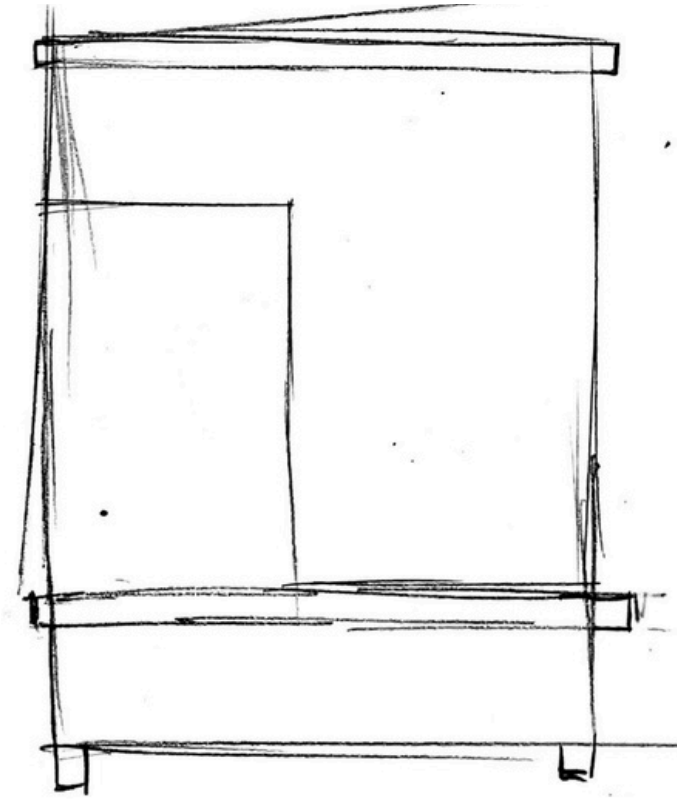
1: ARTS & CRAFTS

Design & emotion

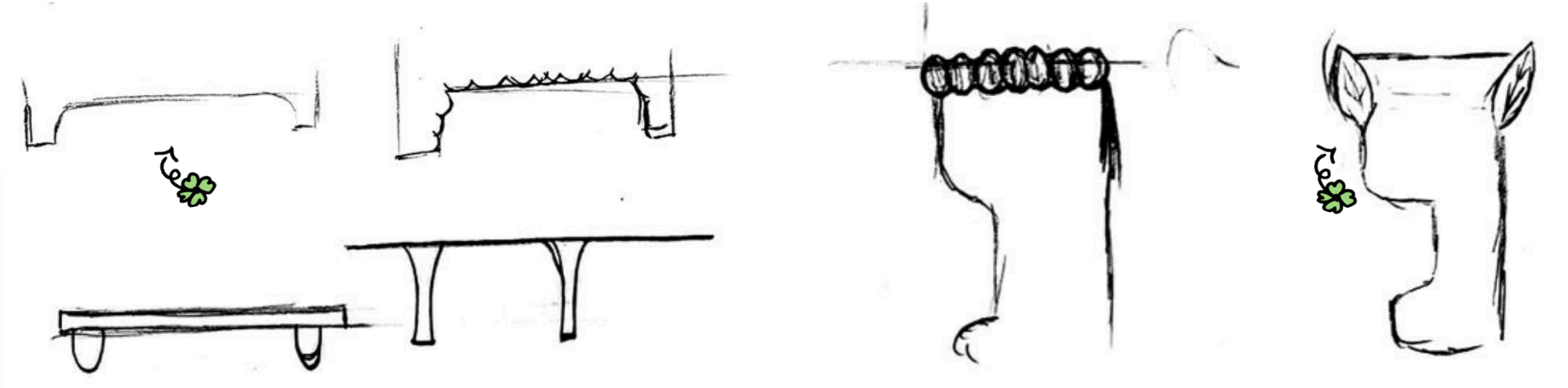
ARTS & CRAFTS



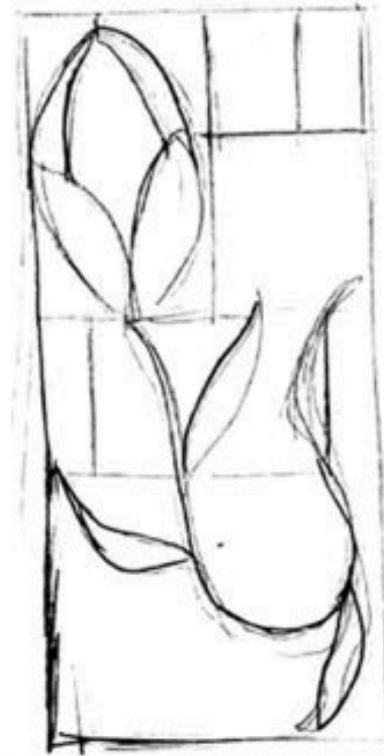
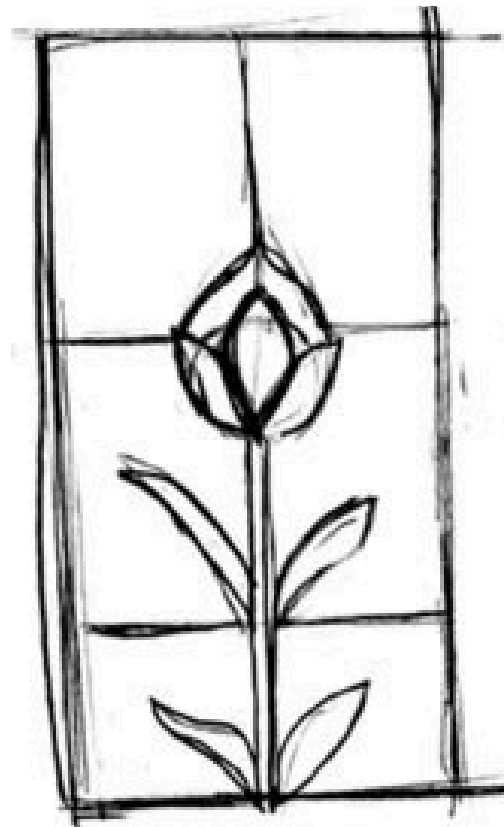
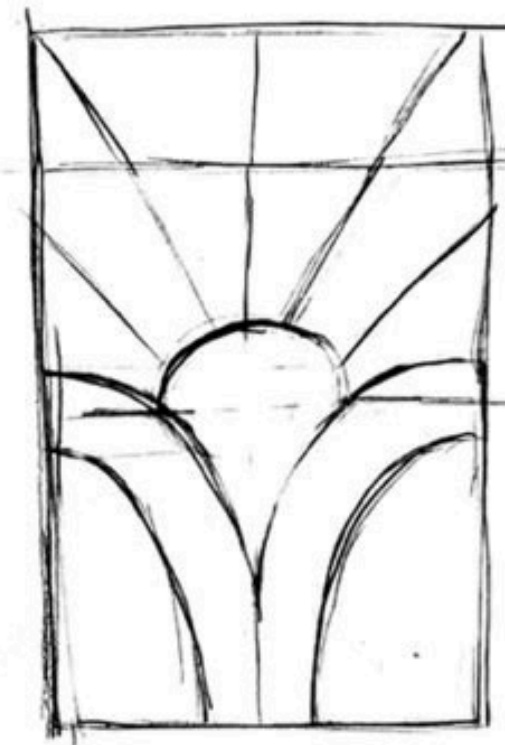
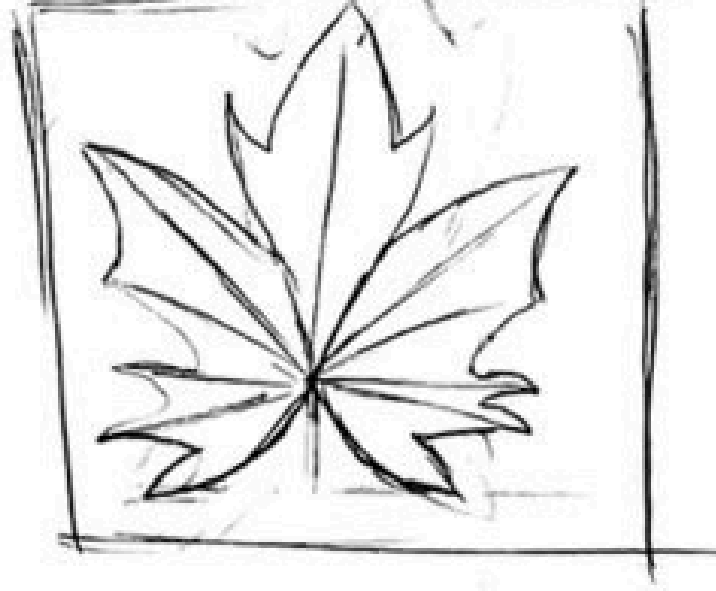
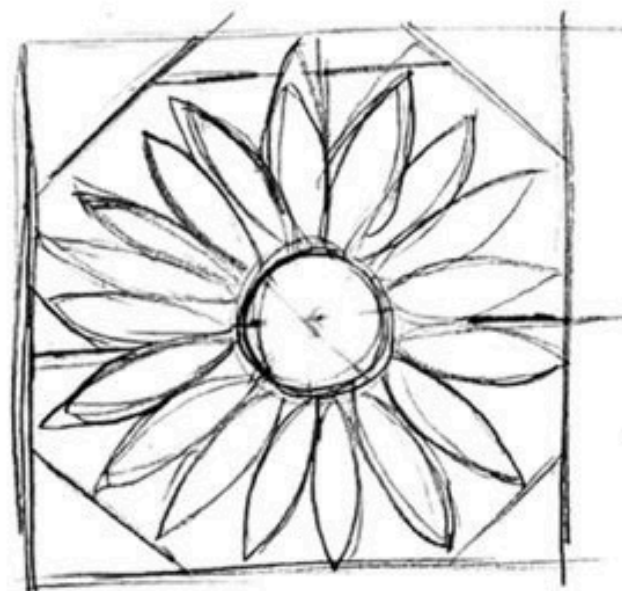
BODY SHAPE



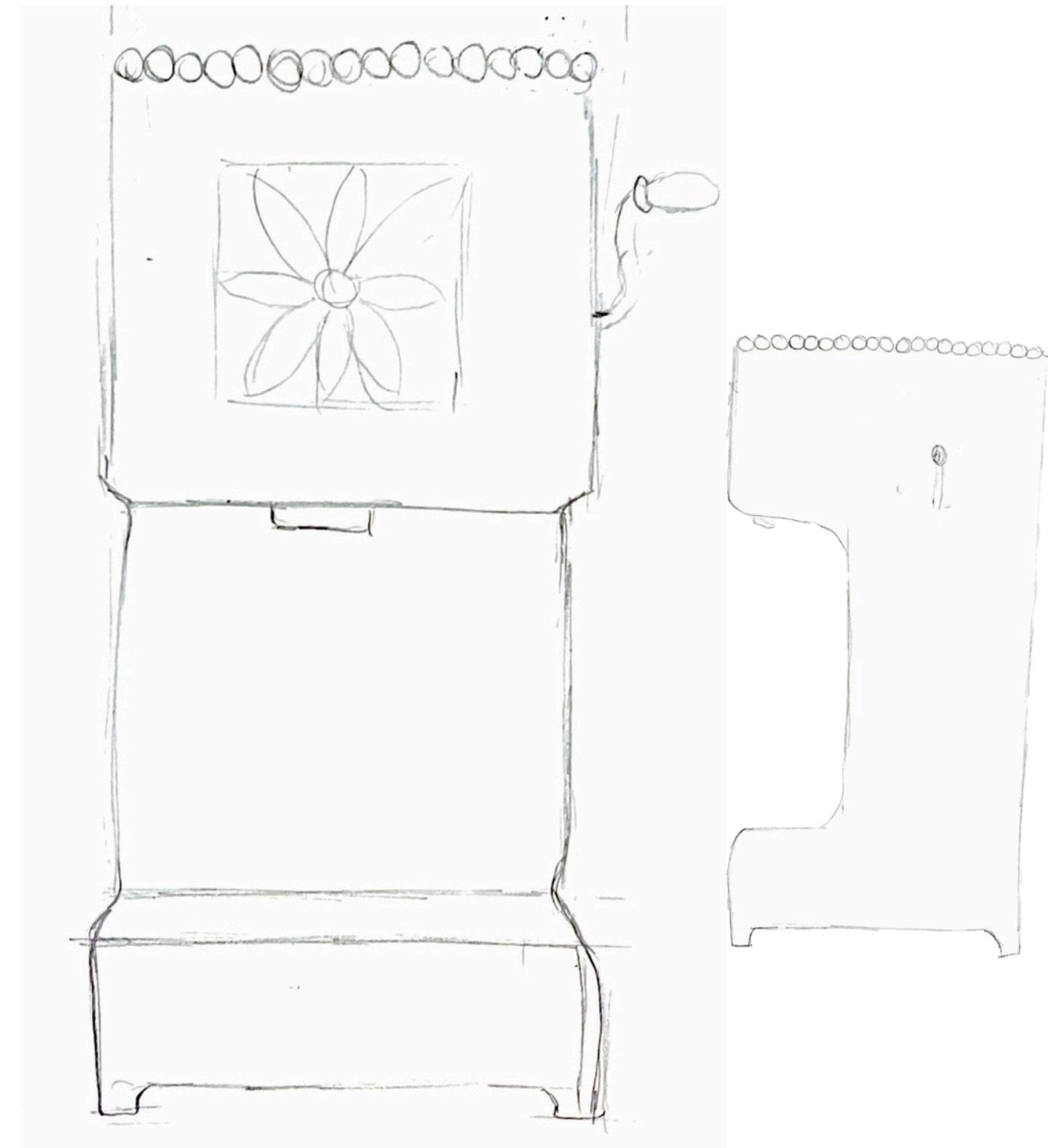
Details



Stain & Glass

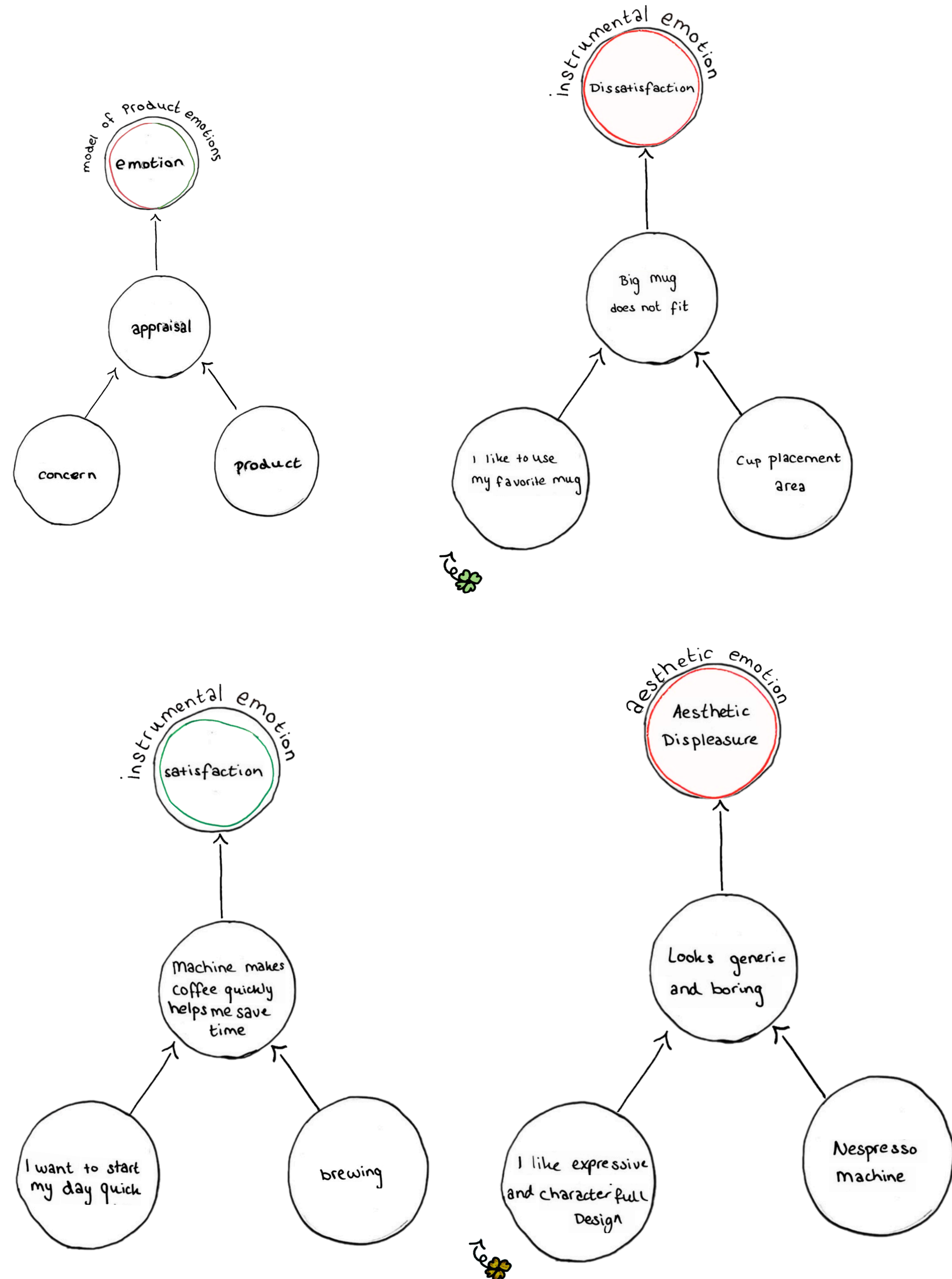


Lever exploration



Design & Emotion

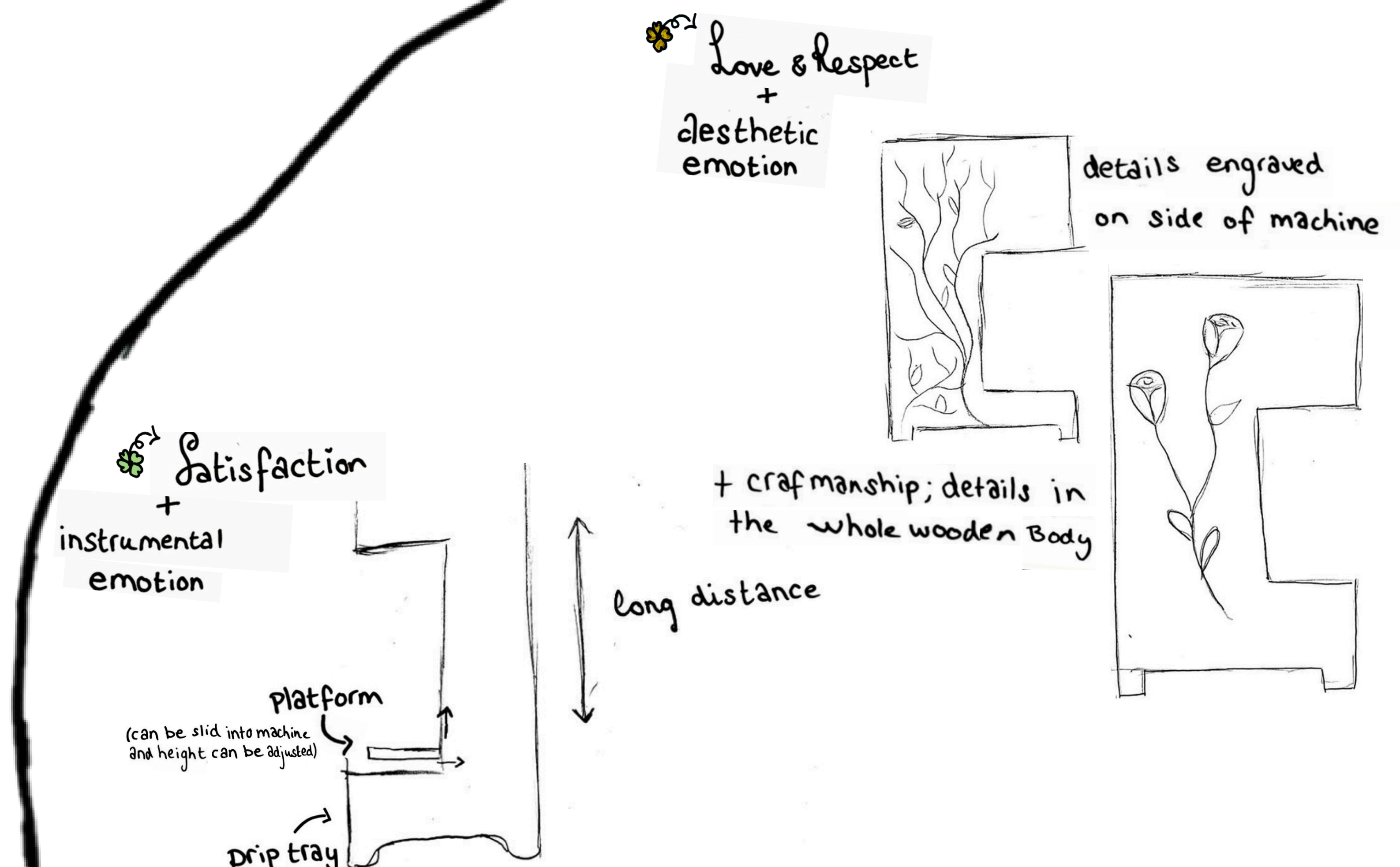
Product Emotions



Positive emotional granularity cards

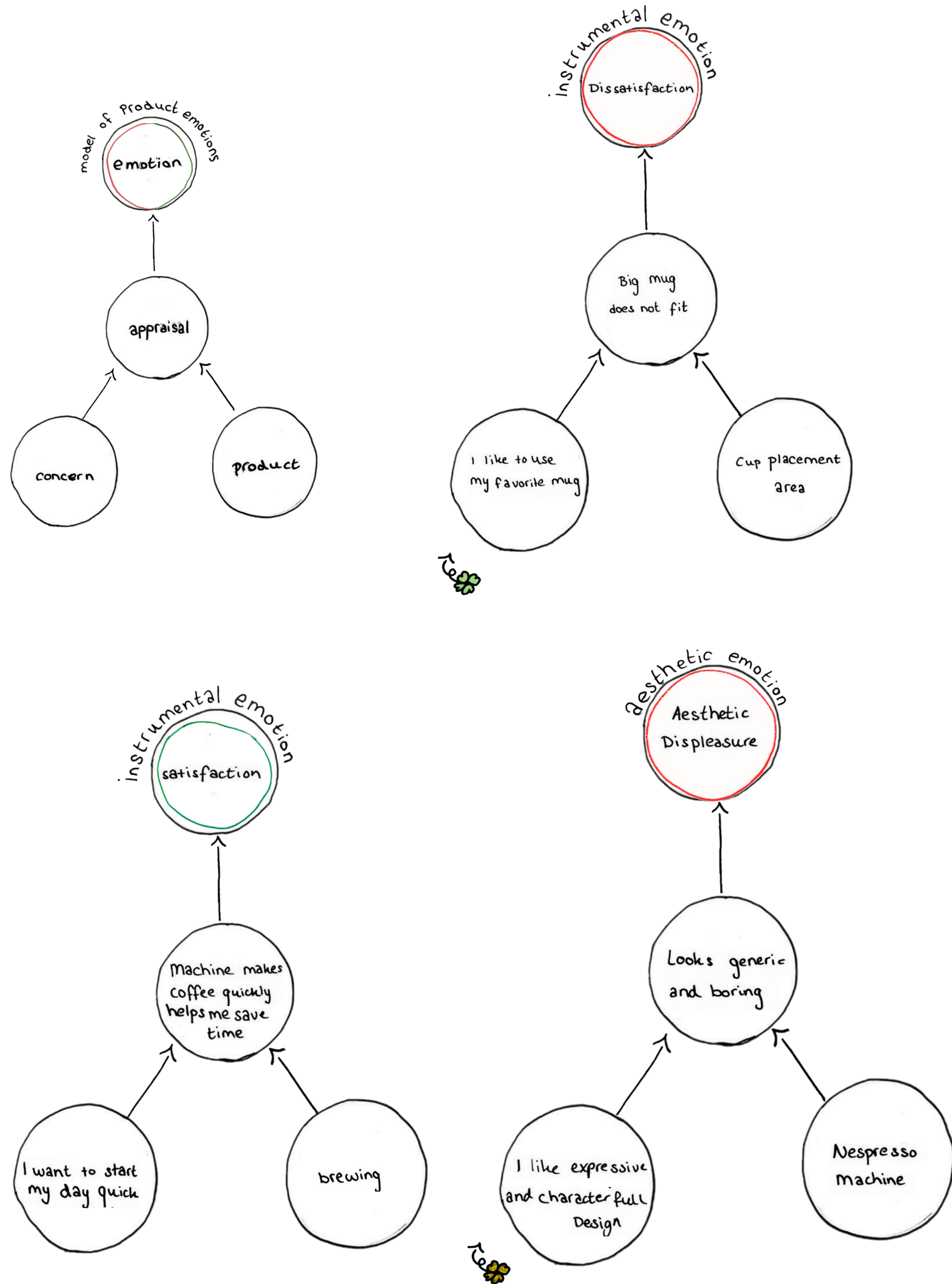
- Kindness**
 conditions: Product "helps" user is considerate
 Design: Spill proof driptray machine "holds" mug
 (Illustration of a coffee machine with a spill-proof tray)
- Amusement**
 conditions: fun/whimsical "surprise"
 Design: instead of humming when brewing
 (Illustration of a coffee machine with musical notes)
- Joy**
 conditions: lighthearted & pleasant
 physical engagement lever for brewing
 (Illustration of a coffee machine with a lever)
- Hope**
 conditions: Expectation of a positive outcome
 Design: transparent/open elements
 (Illustration of a coffee machine with a transparent door)
- Respect**
 conditions: Appreciation of quality
 Design: High quality wood visible craftsmanship
 (Illustration of a wooden coffee machine)
- Surprise**
 conditions: unexpected positive event
 Design: cup inside with doors "when will you get + what?"
 (Illustration of a coffee machine with a hidden cup)
- Satisfaction**
 conditions: something works smoothly + fulfills goals
 Design: adapt to different cup sizes
 (Illustration of a coffee machine with a cup size adjustment)
- Love**
 conditions: Emotional attachment & warmth
 Design: Soft curves, hand finished elements
 (Illustration of a coffee machine with curved lines)

DESIGN SOLUTION ON ABC PRODUCT



Design & Emotion

Product Emotions



Positive emotional granularity cards

Kindness
 conditions: Product "helps" user is considerate
 Design: Spill proof driptray machine "holds" mug

Amusement
 conditions: fun/whimsical "surprise"
 Design: instead of humming when brewing

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 conditions: lighthearted & pleasant
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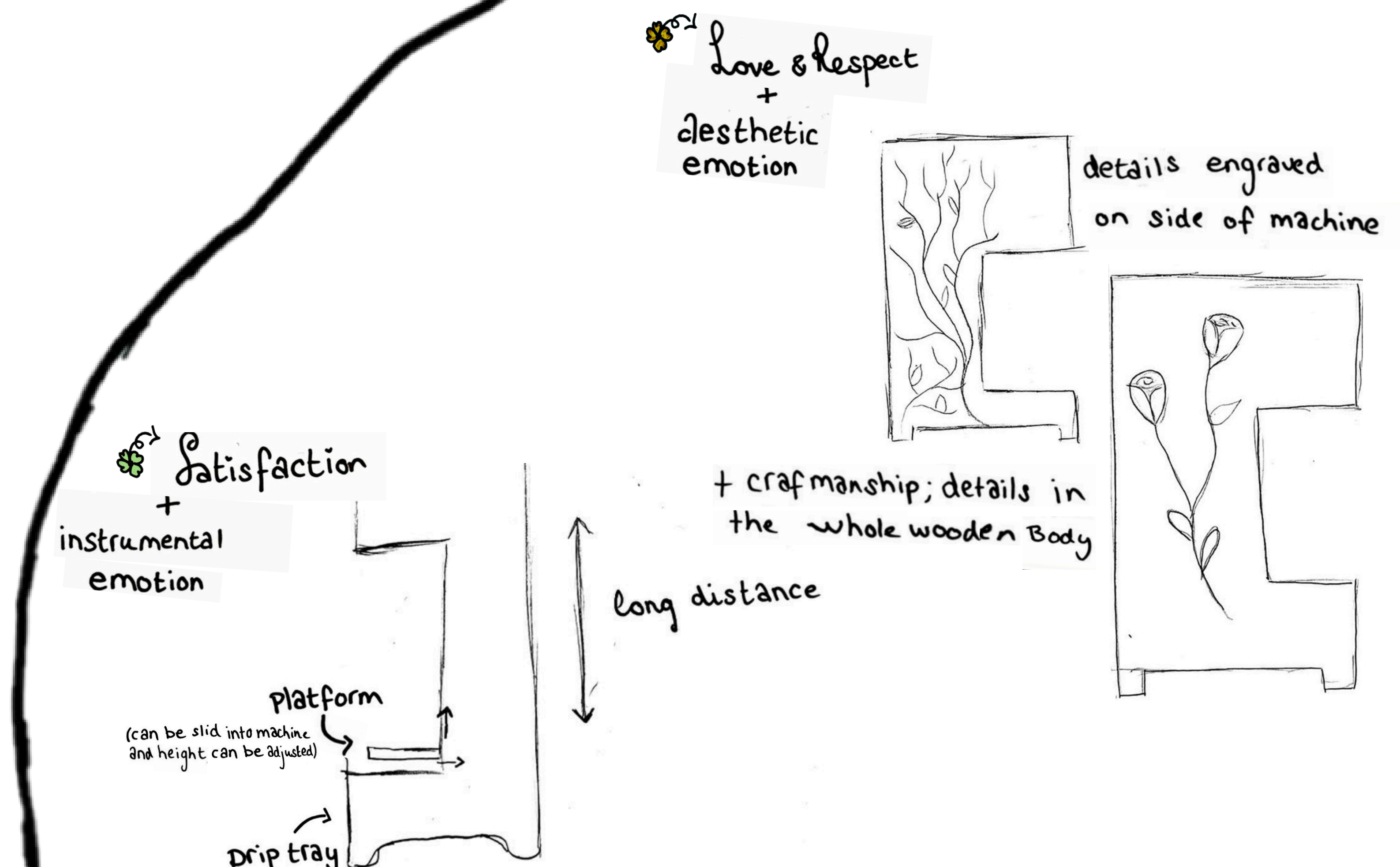
Respect
 conditions: Appreciation of quality
 Design: High quality wood visible craftsmanship

Surprise
 conditions: unexpected positive event
 Design: cup inside with doors "when will you get + what?"

Satisfaction
 conditions: something works smoothly + fulfills goals
 Design: adapt to different cup sizes

Love
 conditions: Emotional attachment & warmth
 Design: Soft curves, hand finished elements

DESIGN SOLUTION ON ABC PRODUCT



ARTS & CRAFTS

Design & Emotion

Iron details



Lever to create waterflow + pressure

Wooden Body
HANDPAINTED
DETAILS



PLATFORM
CAN BE
MOVED
AND FLIPPED
INSIDE

2: BAUHAUS

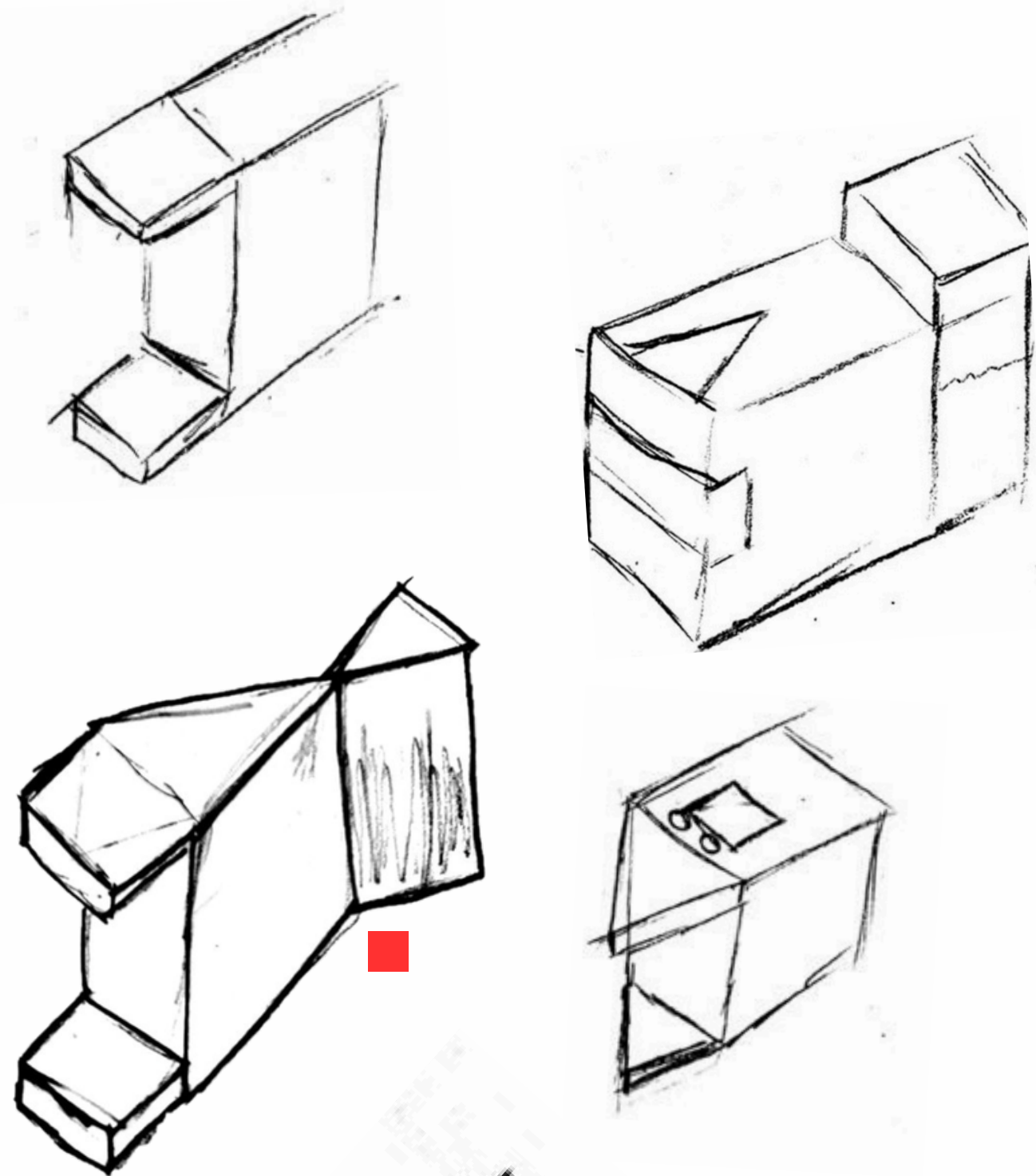
Embodied design

Bauhaus

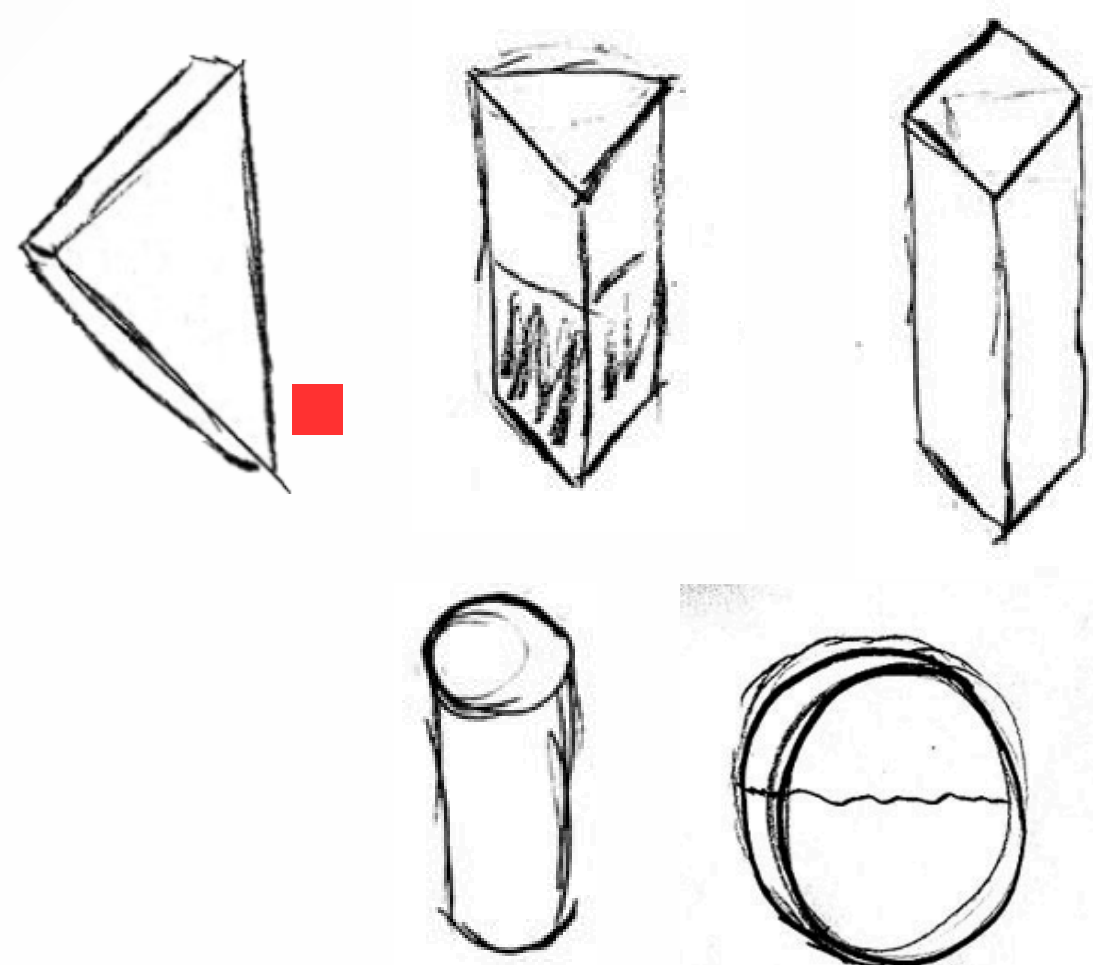
basic shapes:



playing with shapes of existing elements



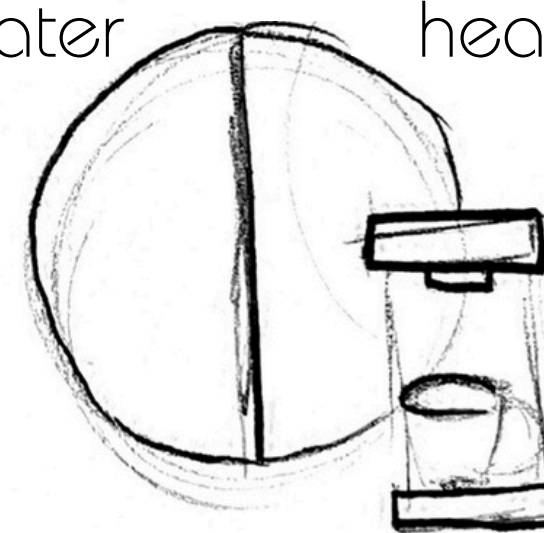
water tank
atatchments



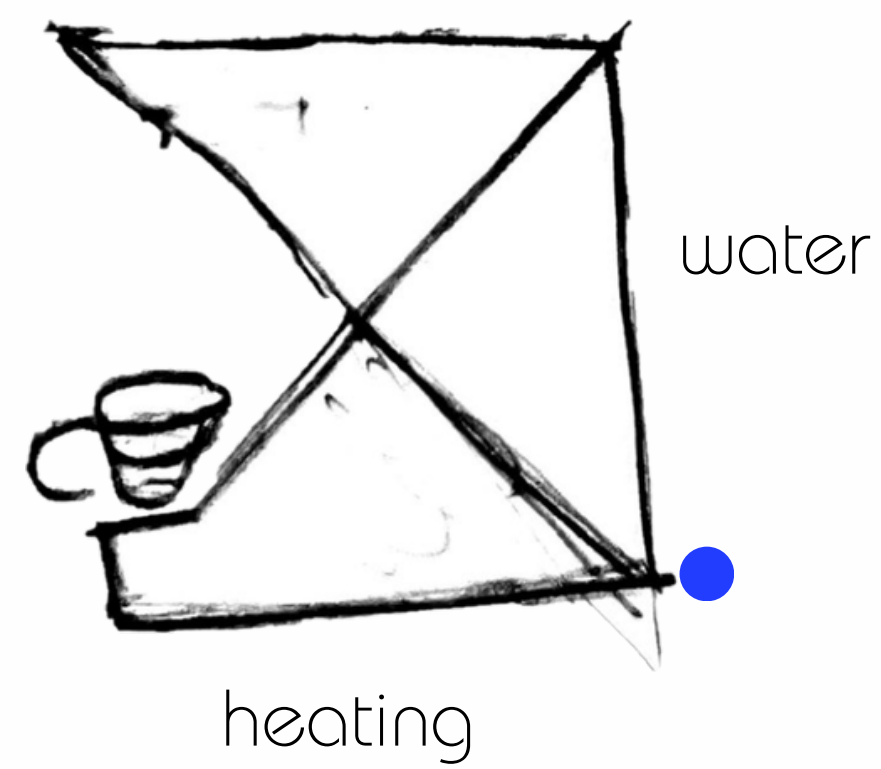
Using shapes to form elements



water heating

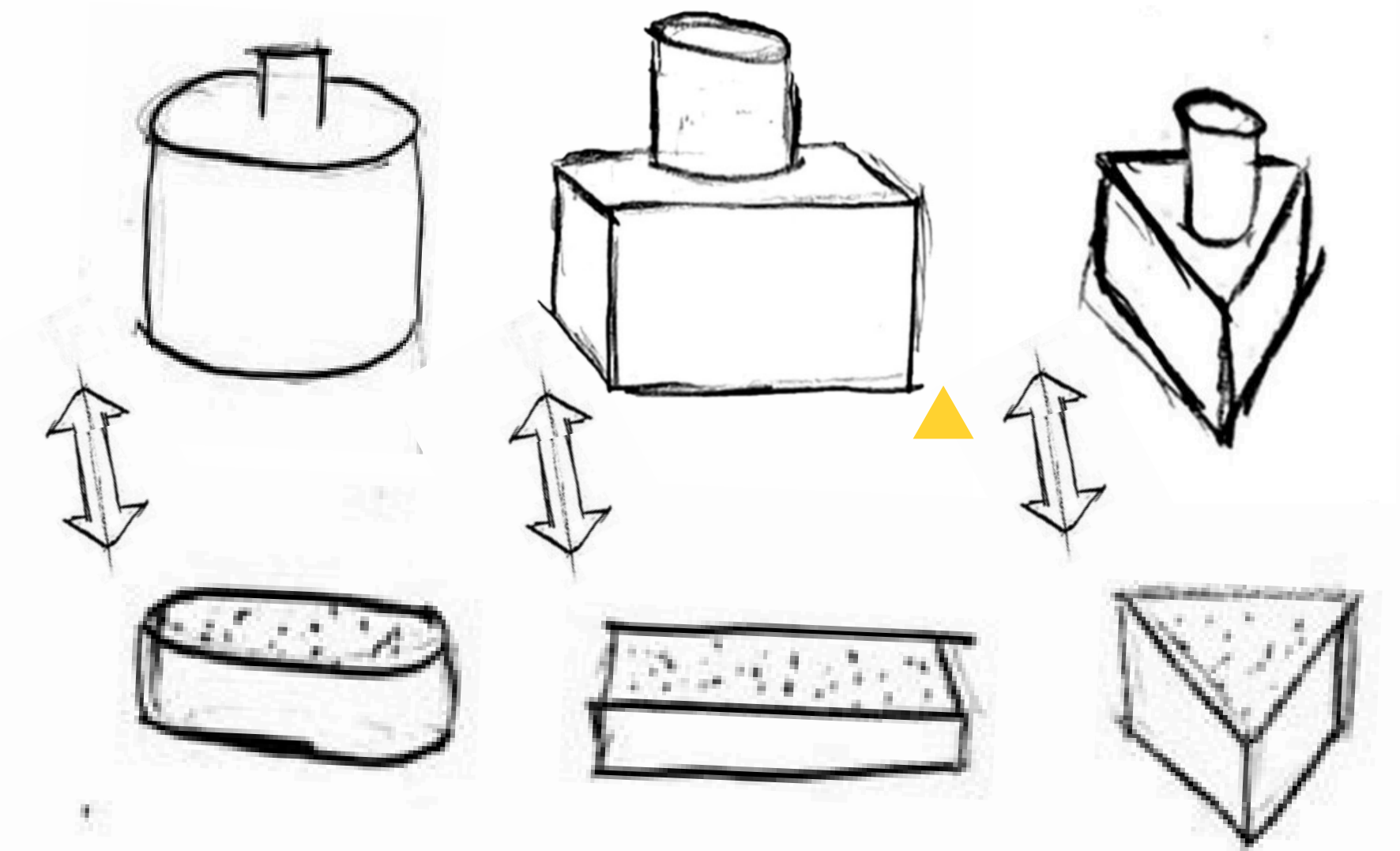


coffee brewing



Pods redesign

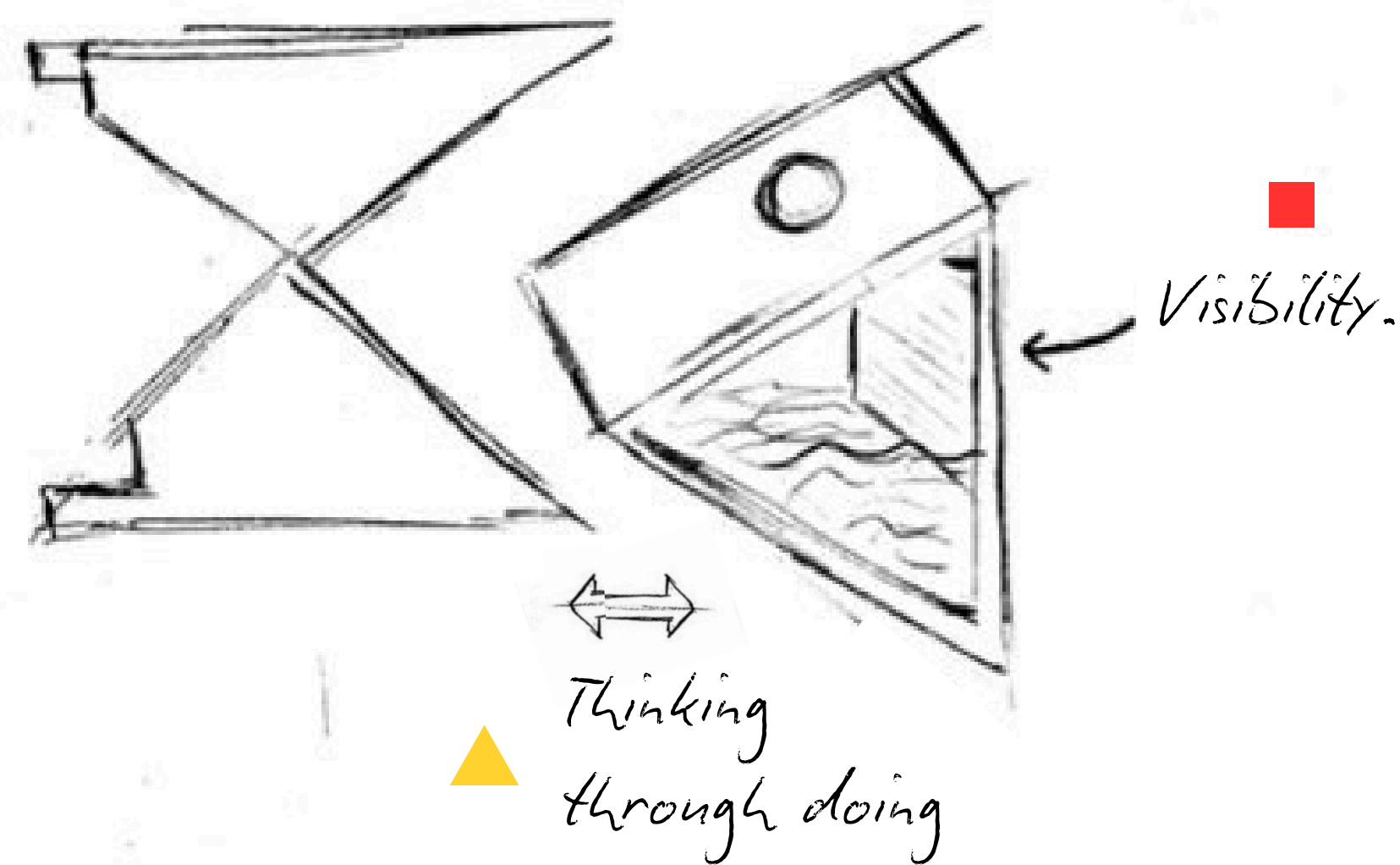
tamping of coffee grounds by temper inside or outside of machine



"Pucks" filled with coffee grounds in stead of coffee pods. pucks are slid in to the machine



Embodied design

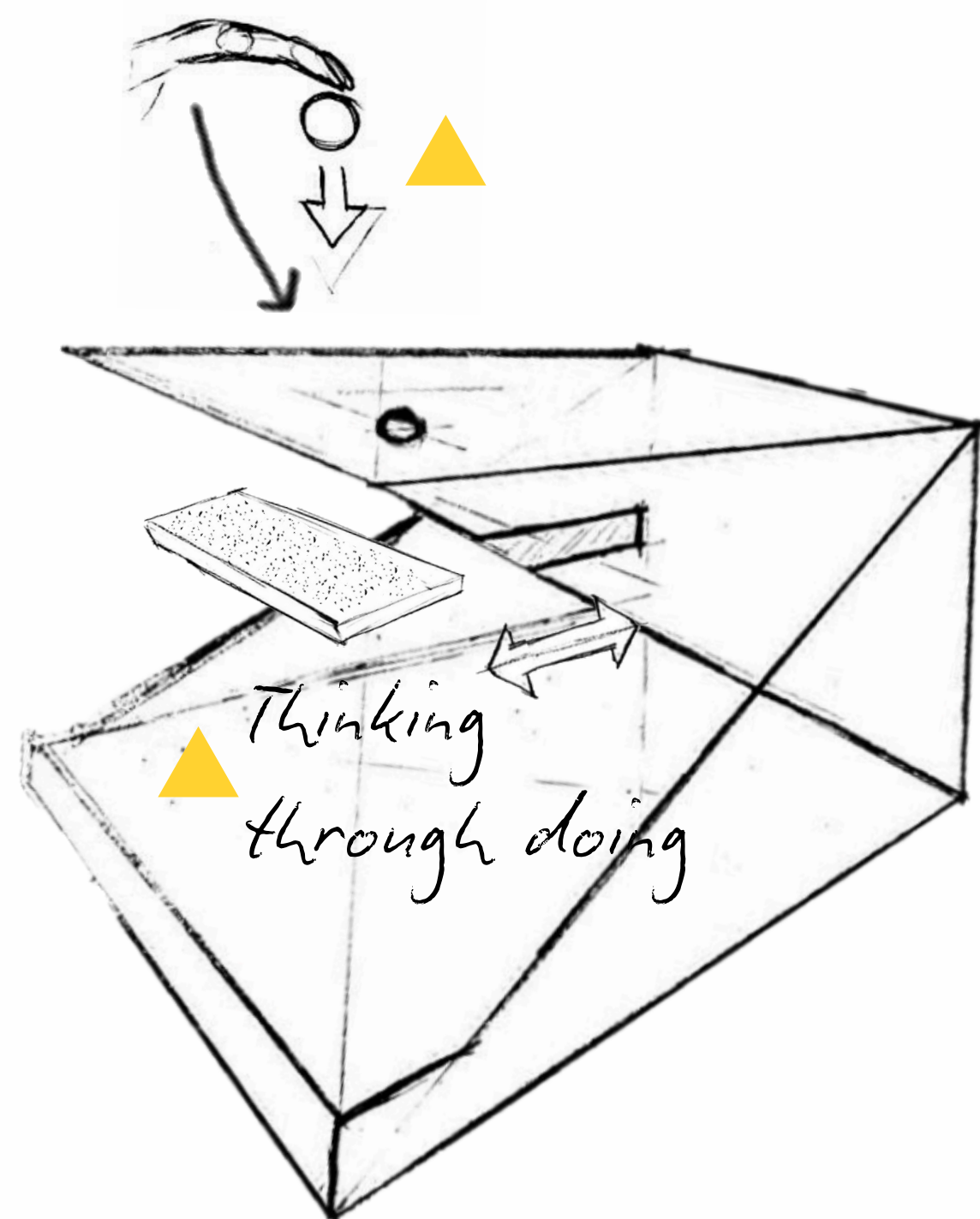


Visibility

The glass water tank reveals the water level and bubbling as it heats, giving the user direct feedback. The pressure gauge shows the buildup of energy inside. These cues communicate the coffee brewing process taking place

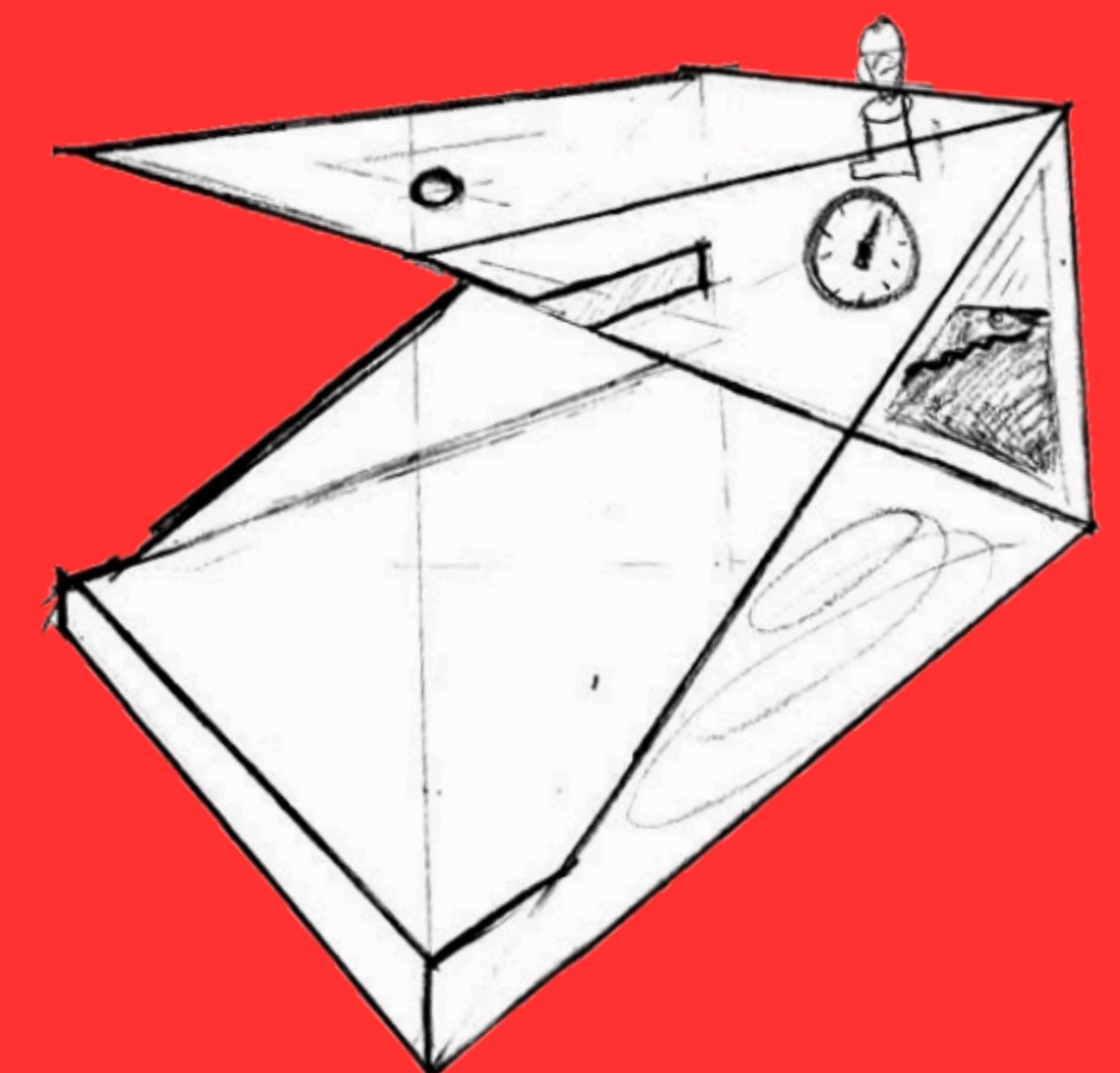
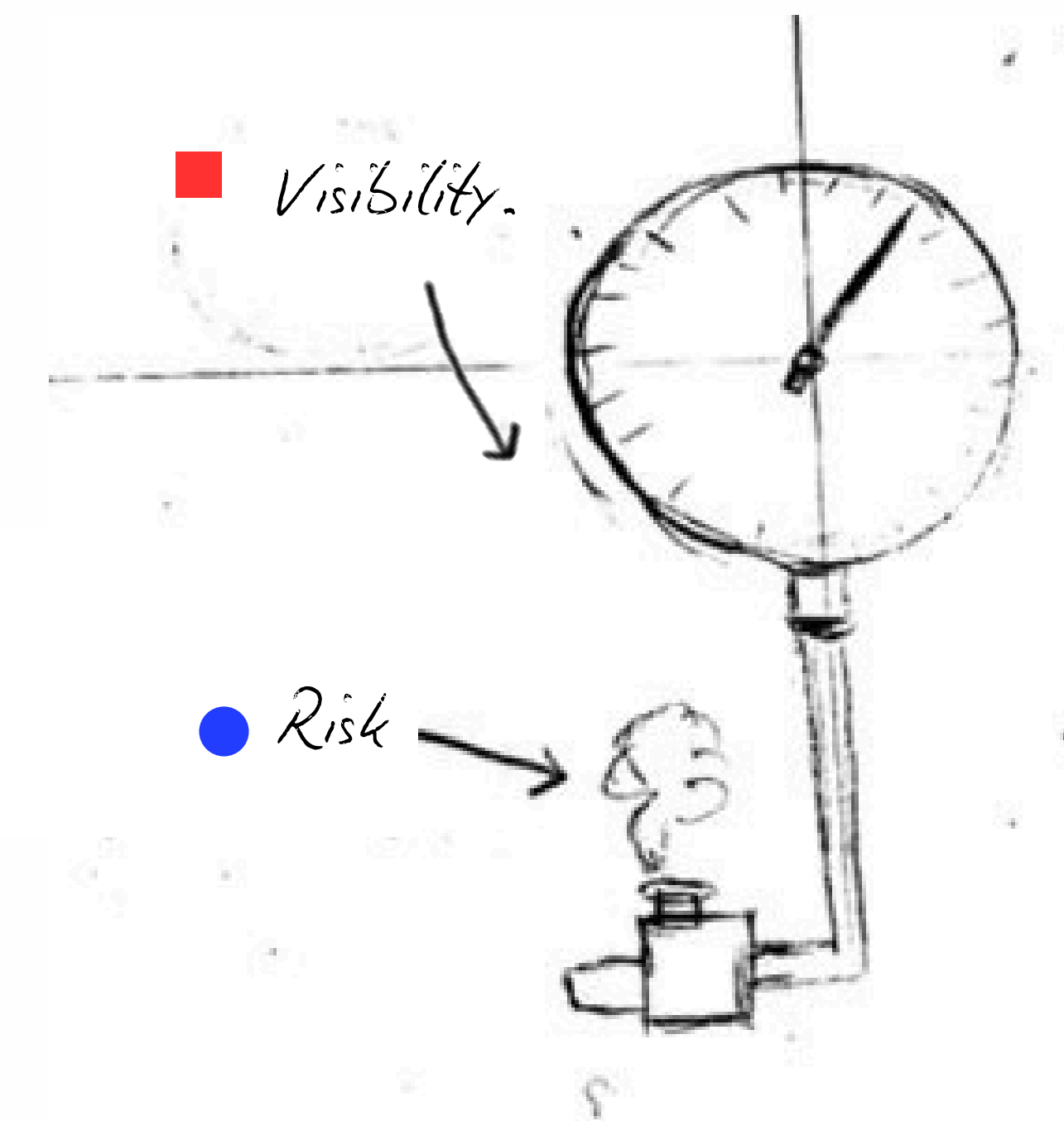
Risk

The movement of the pressure gauge and occasional puffs of vapor signal that the machine is actively working, creating an awareness of its power. This controlled sense of risk keeps the user focused, emphasizes personal responsibility, and enhances the feeling of craft and ritual in each brew.



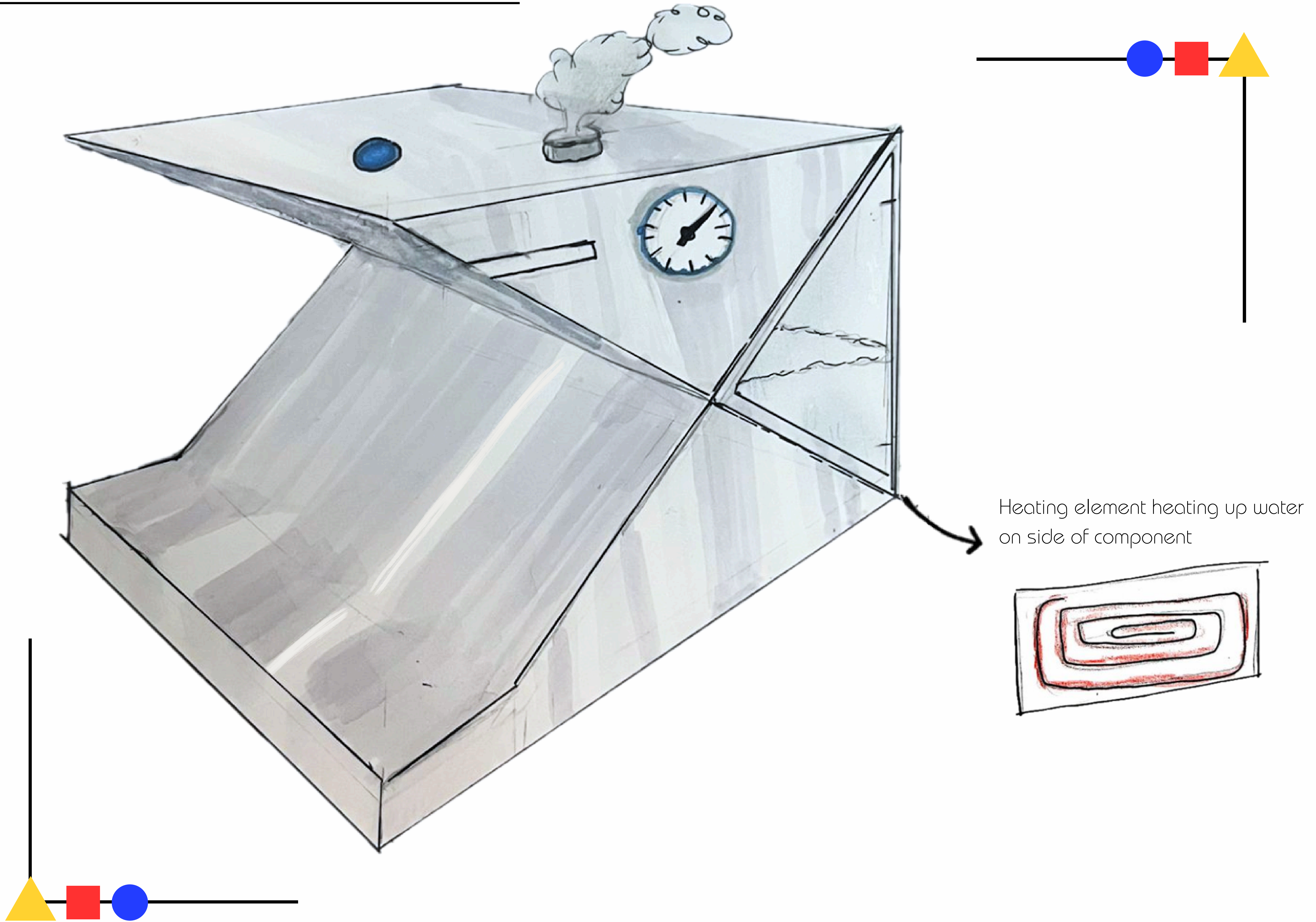
Thinking Through Doing

The user learns by interacting with the machine. The coffee puck holder only fits when aligned correctly, teaching the user through trial rather than instructions. The brewing chamber itself can be removed and placed back into position, this created understanding through action. Pressing the button triggers the hidden tamper, and the start of the coffee-making process lets the user understand that the grounds have been compressed.



Bauhaus

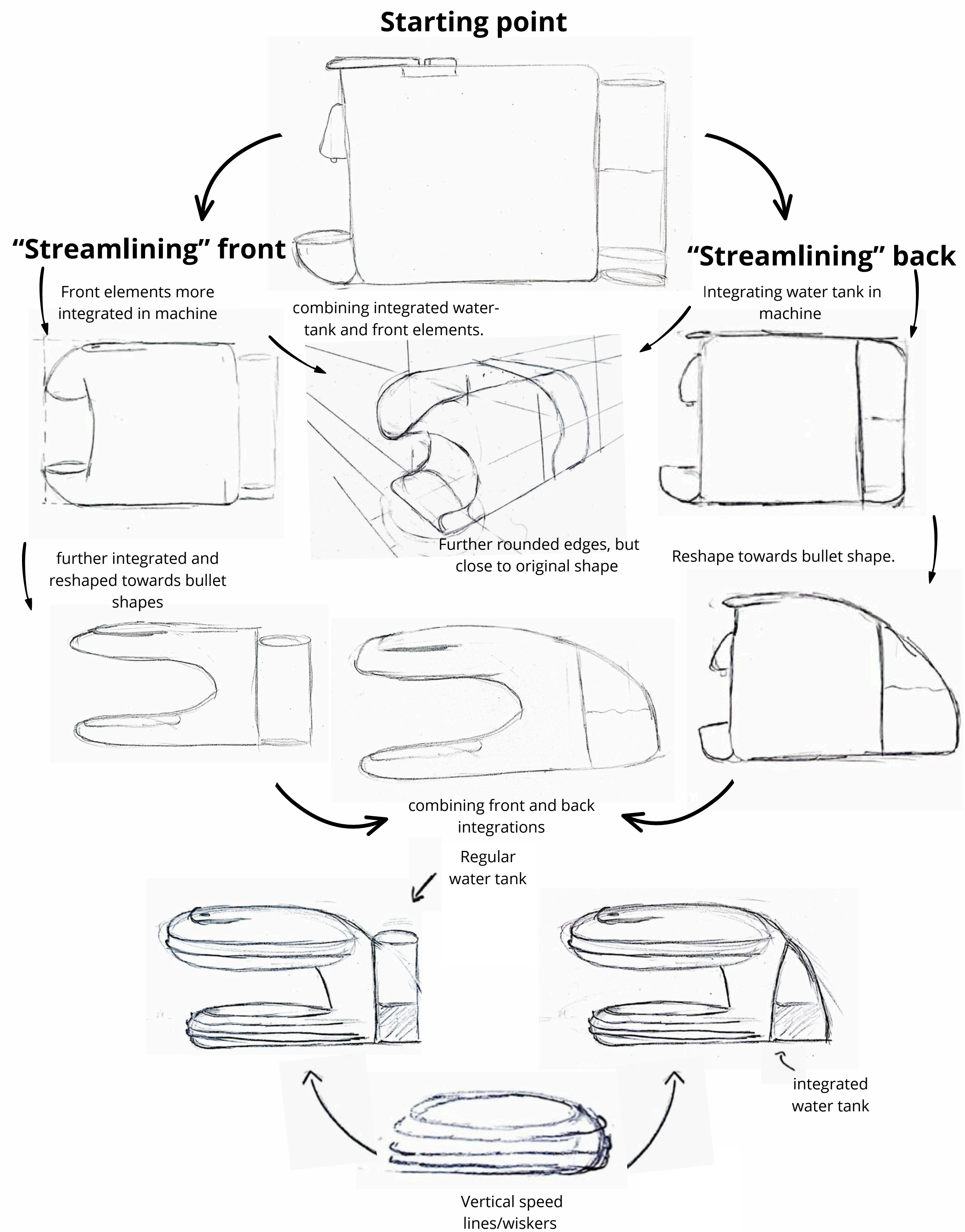
Embodied design



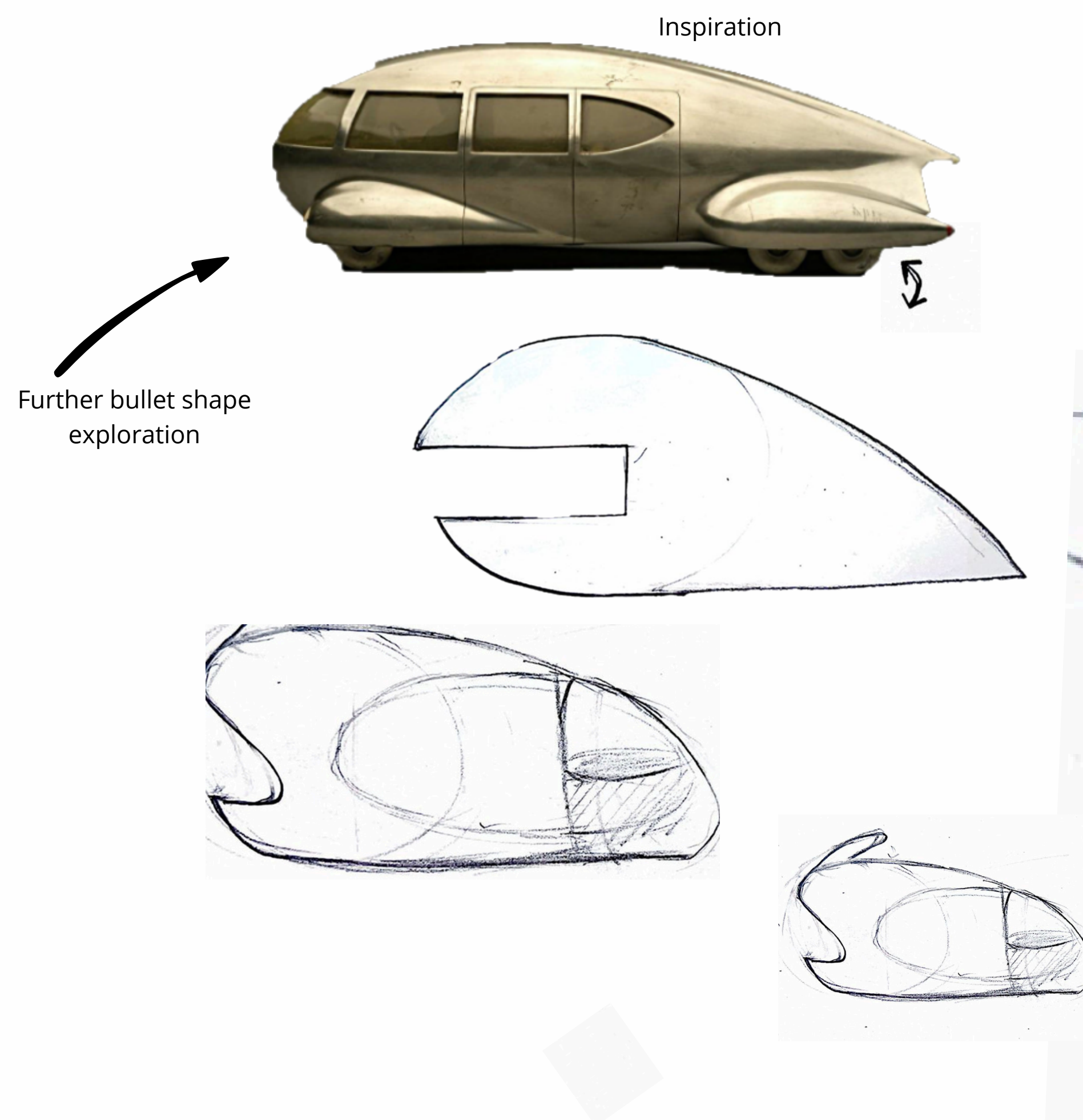
3: STREAMLINE

Persuasive Design

Streamline

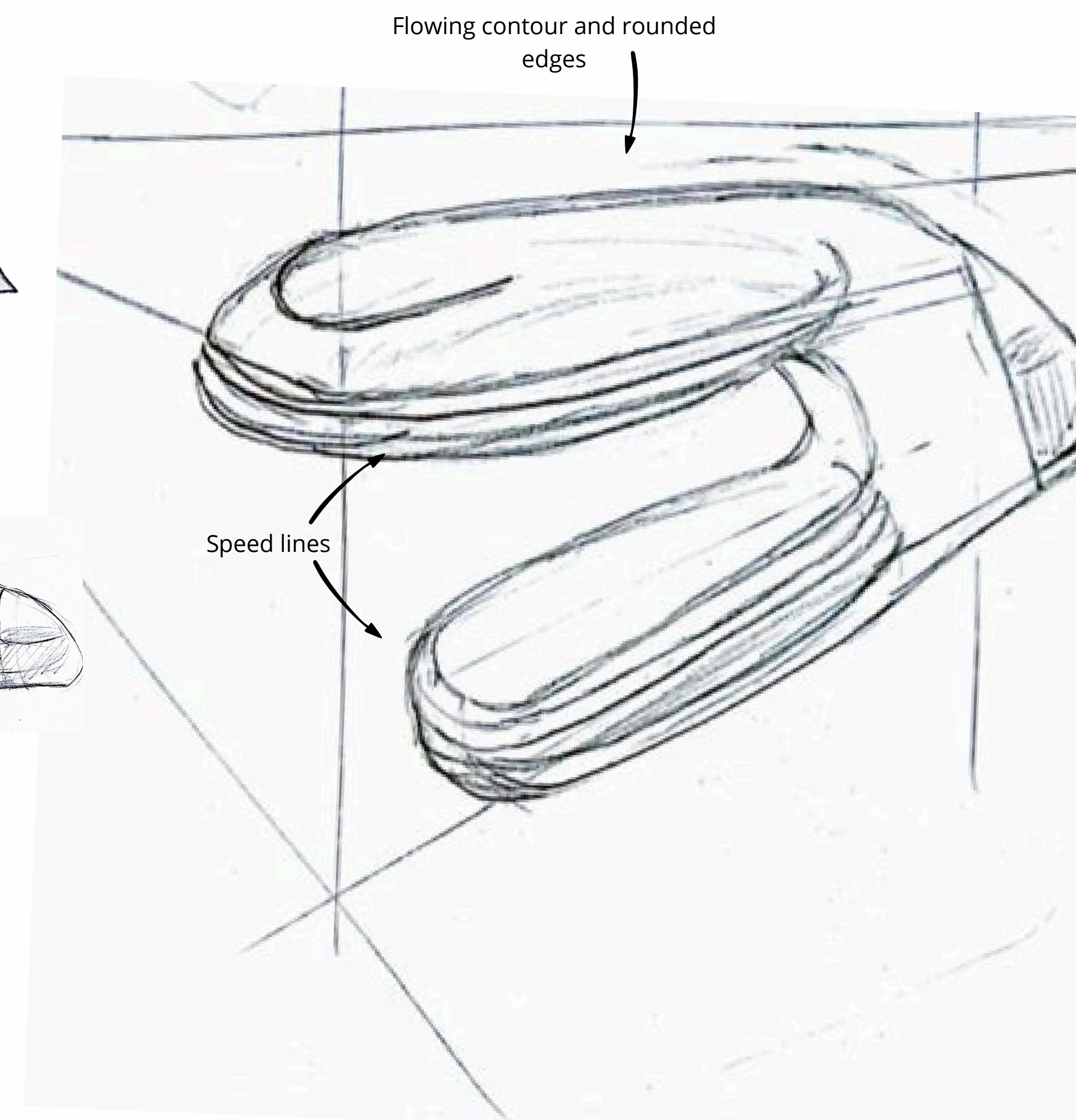
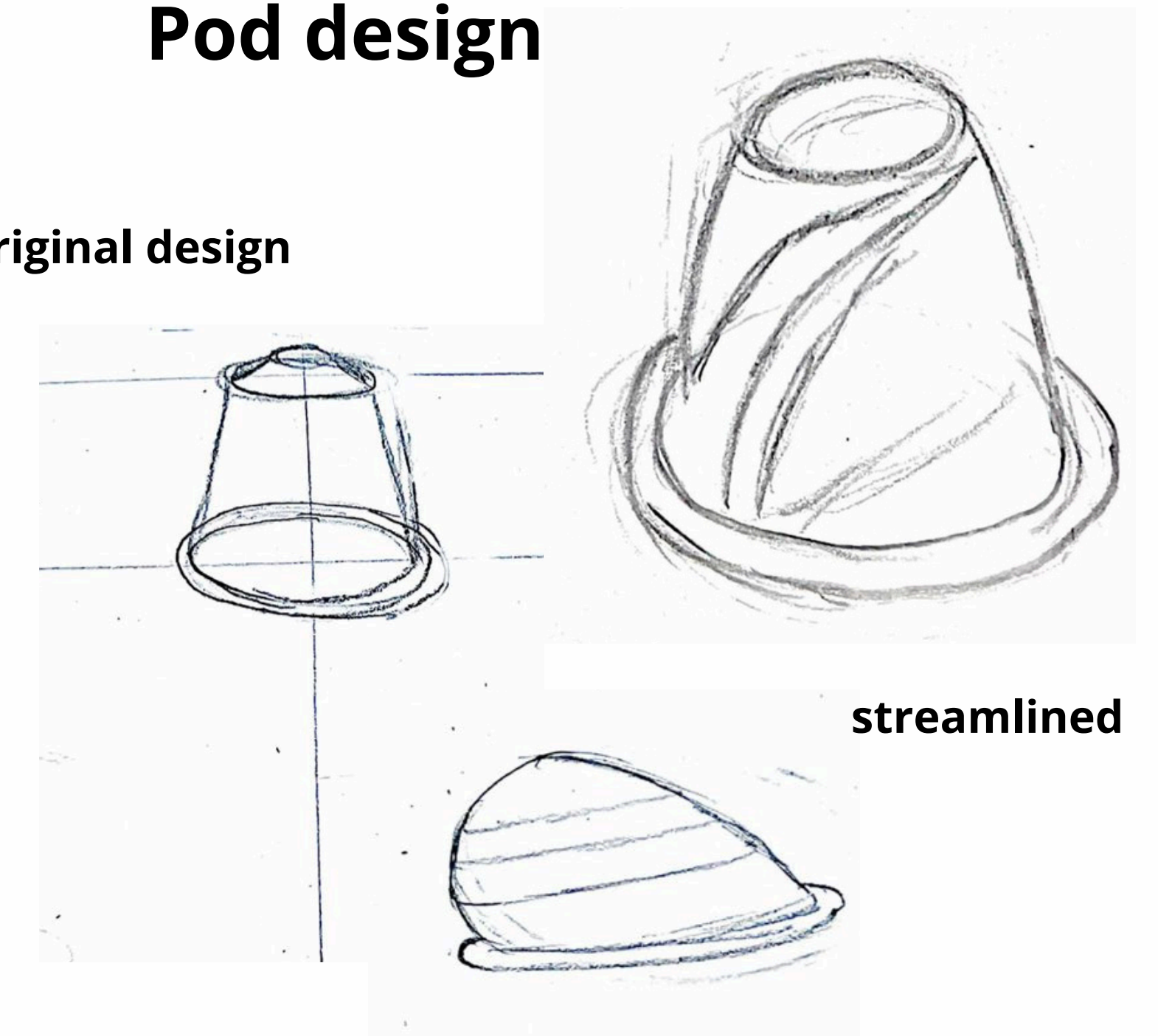


Bullet shape machine-body exploration



Pod design

original design



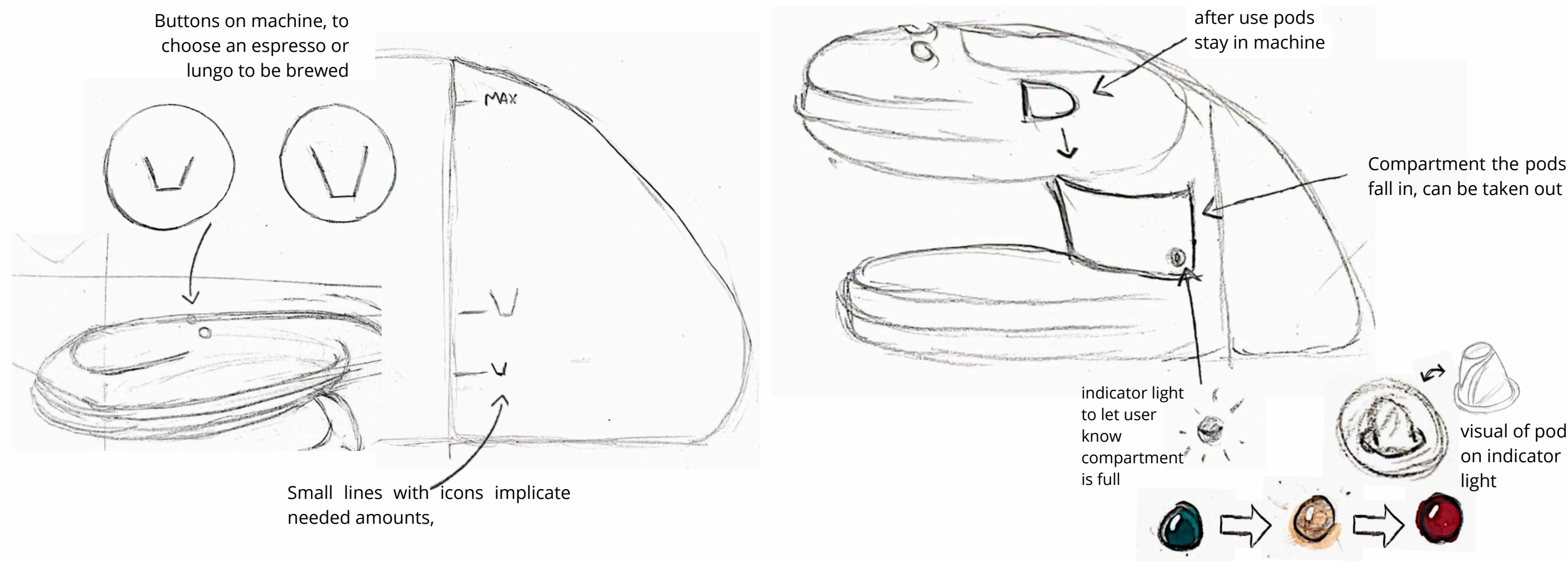
PERSUASIVE DESIGN

REDESIGN OF FEATURES

Water tank

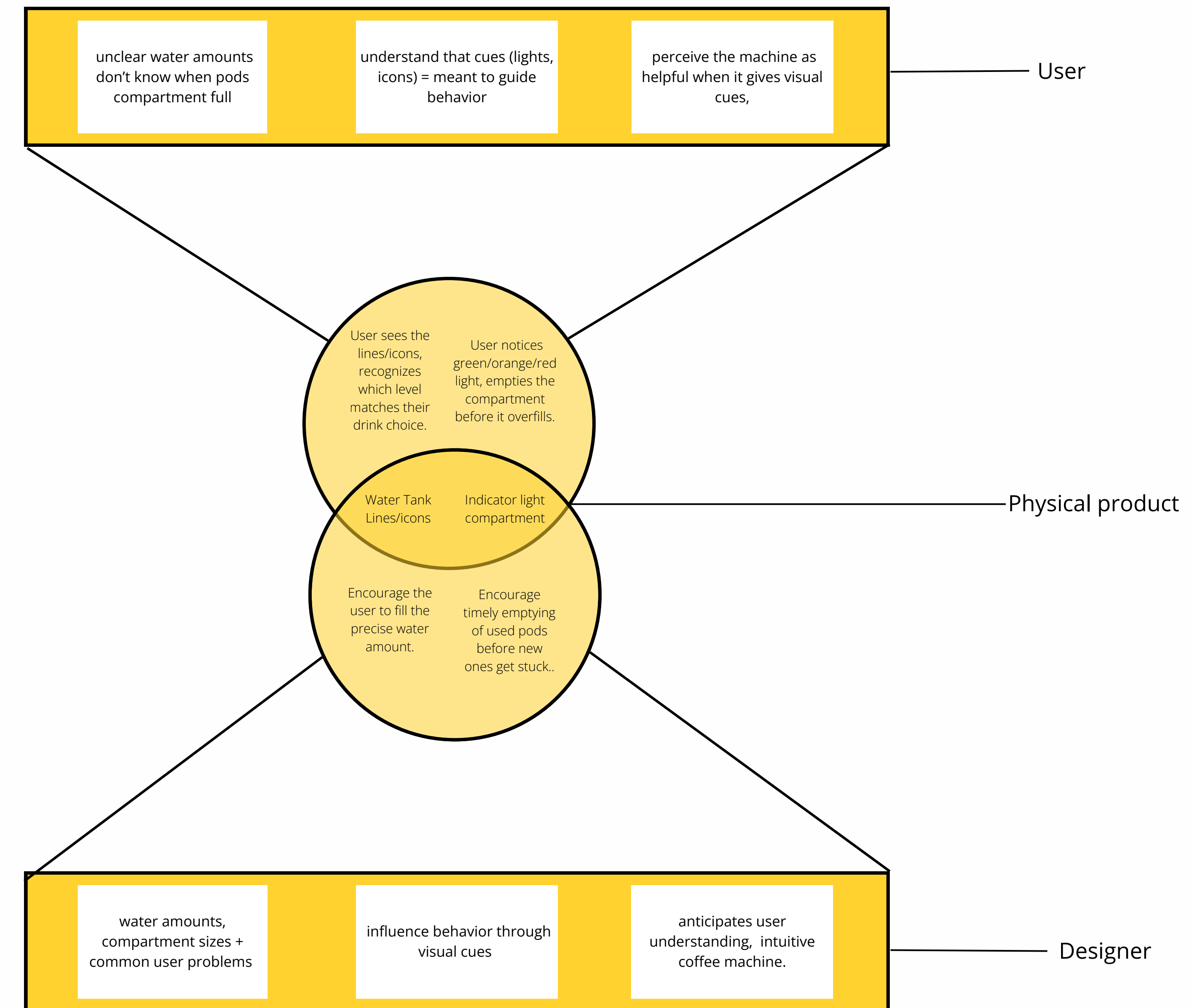
Looking at the water tank, visual guidance helps users fill more exact/the right amount of water for different coffee types. Icons, together with lines indicate the water amount needed for an espresso or lungo. This should persuade the user to always use the right amount of water, never too much. Creating less water spillage. This persuasive design nudges users to fill only the required amount of water, reducing confusion, spillage, and unnecessary waste.

The same icons as on buttons on top of machine are used, matching these icons creates a connection between selection and preparation. This makes filling the tank intuitive, reducing confusion. These informative elements support the persuasion by making the correct choice immediately understandable and intuitive.



Used pods compartment

A small round light on the used pod compartment provides real-time maintenance feedback by changing from green to orange to red, indicating when it should be emptied. Orange is an early reminder, while red signals immediate attention to prevent blockages. This color-coded system is both informative and persuasive: it informs users about the compartment status while persuading them to perform maintenance at the right moment through gradual, color-coded feedback.



PKM model

The PKM model was applied by analyzing how users understand and interact with a coffee machine based on prior experience.

User research

Used pods compartment light:

"Seeing an orange light I would check whether everything is alright (and maybe empty the compartment), on red I would assume something is wrong."

Water tank icons (connected to buttons)

"I immediately connect the smaller cup to an espresso in my head."

"Both icons are the same, so I think they are connected/mean the same thing."

Both elements and overall functions

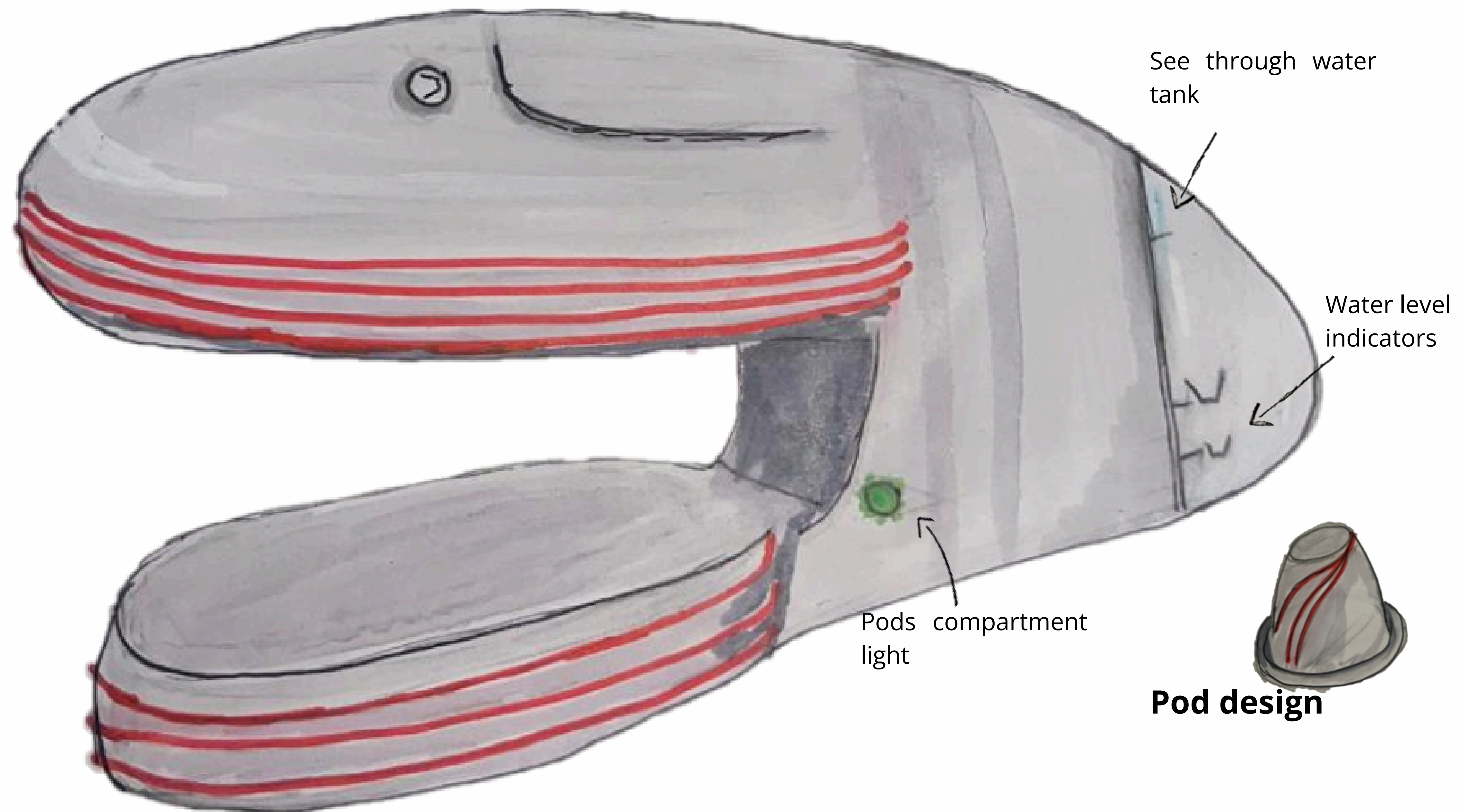
"After a single cup of coffee I think I would know what all functions and indicators are."

Results

The Users seemed to understand what the icons indicated and what the light meant. One user did not feel urgency to clean out pods with orange light. To help this, the red light could be activated earlier and only once the compartment is really full, the light will blink.

Streamline

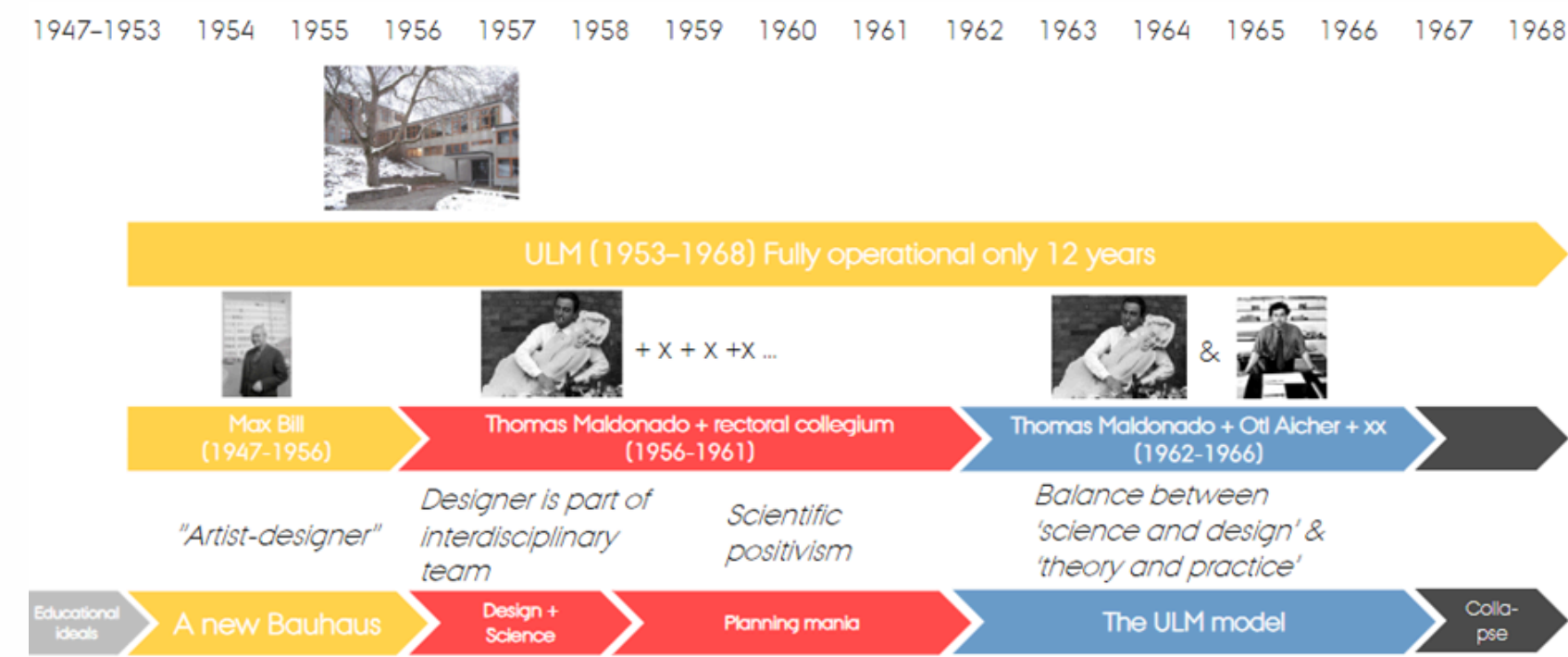
PERSUASIVE DESIGN



4: ULM SCHOOL

Design & meaning

ULM SCHOOL DESIGN & MEANING



Reaction against:

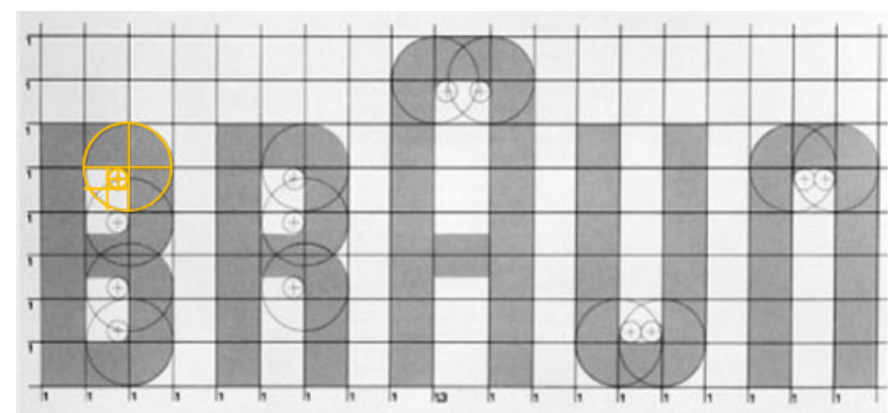
Nazi aesthetics and propaganda design
Decorative, commercial “kitsch” and Streamline styling of the 1930s–40s
Society needed functional, affordable, honest design for mass production.
Built on Bauhaus ideas, but updated them for the industrial and scientific age

Bauhaus → “artist-designer” tradition

Ulm → rejected personal artistic expression and replaced it with systematic, scientific, and socially responsible design

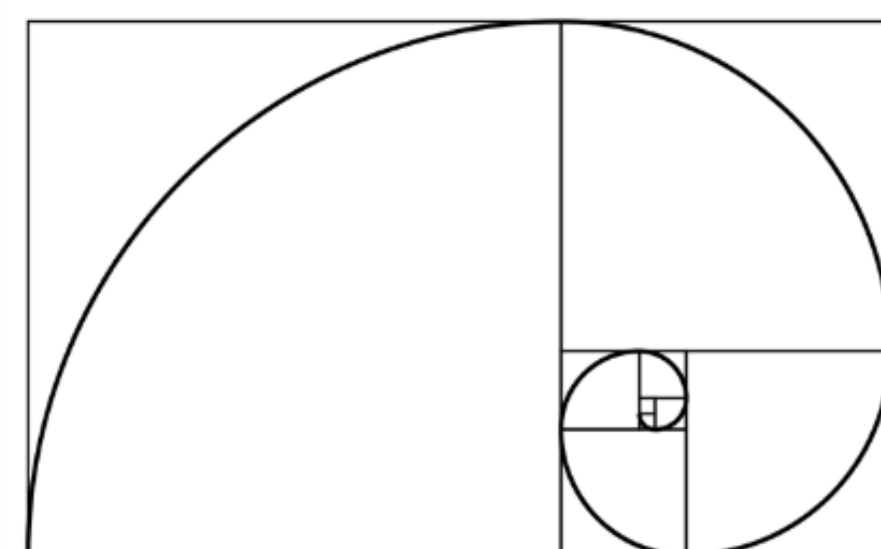
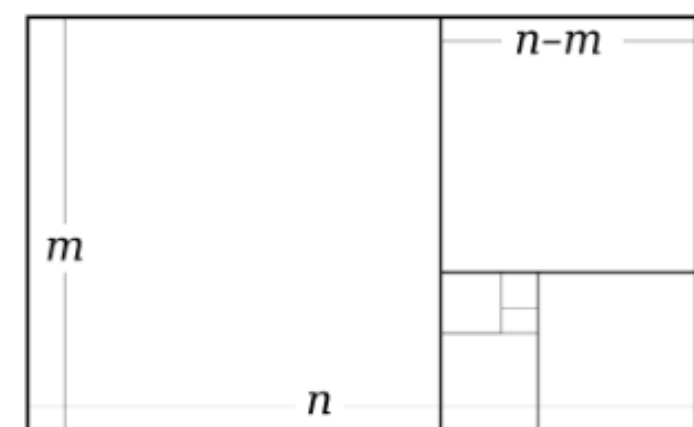
Key ideals & design principles

- Design serves society, not individual taste
- “Good design should be accessible to all”
- Emphasis on:
 - Functionality
 - Ergonomics
 - Rational systems thinking
 - Longevity and universality
- Designer as part of a team (engineers, scientists, sociologists)
- Shift from artist-designer → designer as problem-solver



Braun logo- Otl Aicher & Hans Gugelot, 1955

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, ...



Grid+ Golden Ratio

Golden Spiral

- Restrained, functional palette:
 - Black
 - White
 - Grey
 - Silver
- Limited use of color for:
 - Information
 - Interface clarity
 - Example: Braun’s black-and-silver identity

Recognition

- Strong rejection of ornament and decoration
- Neutral, restrained forms
- Visual clarity and legibility
- “Form follows function” → later refined to rationalized form based on science
- Products should not show personal style
- Clear counter-movement to Streamlining and styling trends

Materials used

- Industrial, mass-producible materials:
 - Plastics
 - Aluminum
 - Steel
 - Glass
- Chosen for:
 - Efficiency
 - Durability
 - Manufacturability
- Materials expressed honestly, without disguise.

Key persons

- Max Bill – first rector; Bauhaus-trained architect and designer
- Otl Aicher – visual communication, corporate identity, Lufthansa & Olympics
- Tomás Maldonado – design theorist; introduced science, semiotics, systems thinking
- Hans Gugelot – system design, Braun products
- Dieter Rams – Braun designer, “Less, but better”, 10 principles of good design

10 Good design principles

- Dieter Rams
1. Is innovative
 2. Makes a product useful
 3. Is aesthetic
 4. Makes a product understandable
 5. Is unobtrusive
 6. Is honest
 7. Is long-lasting
 8. Is thorough down to the last detail
 9. Is environmentally friendly
 10. Involves as little design as possible



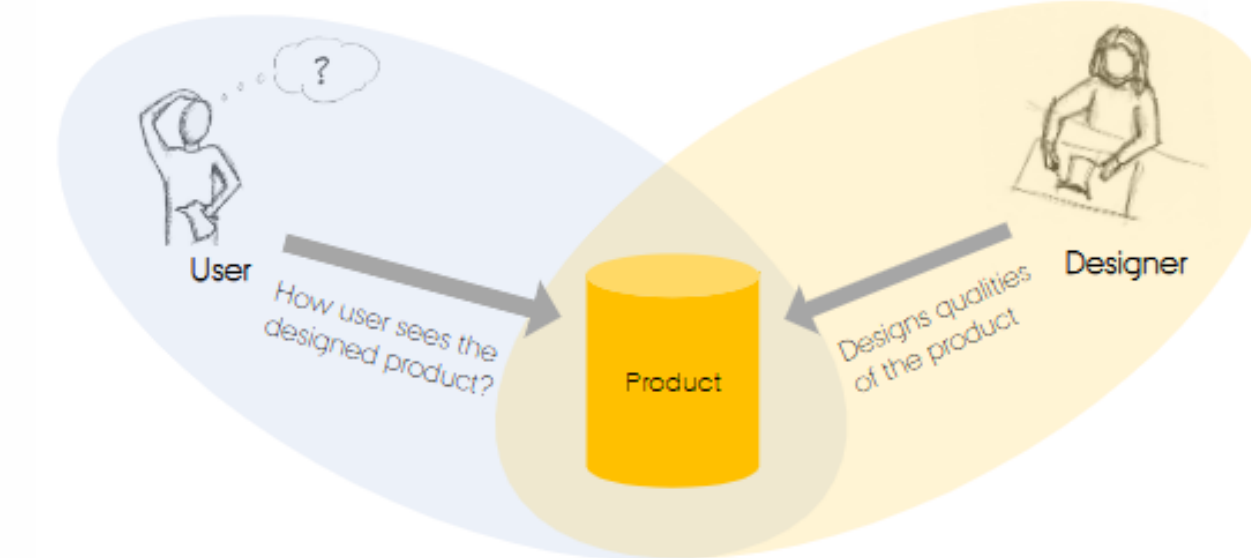
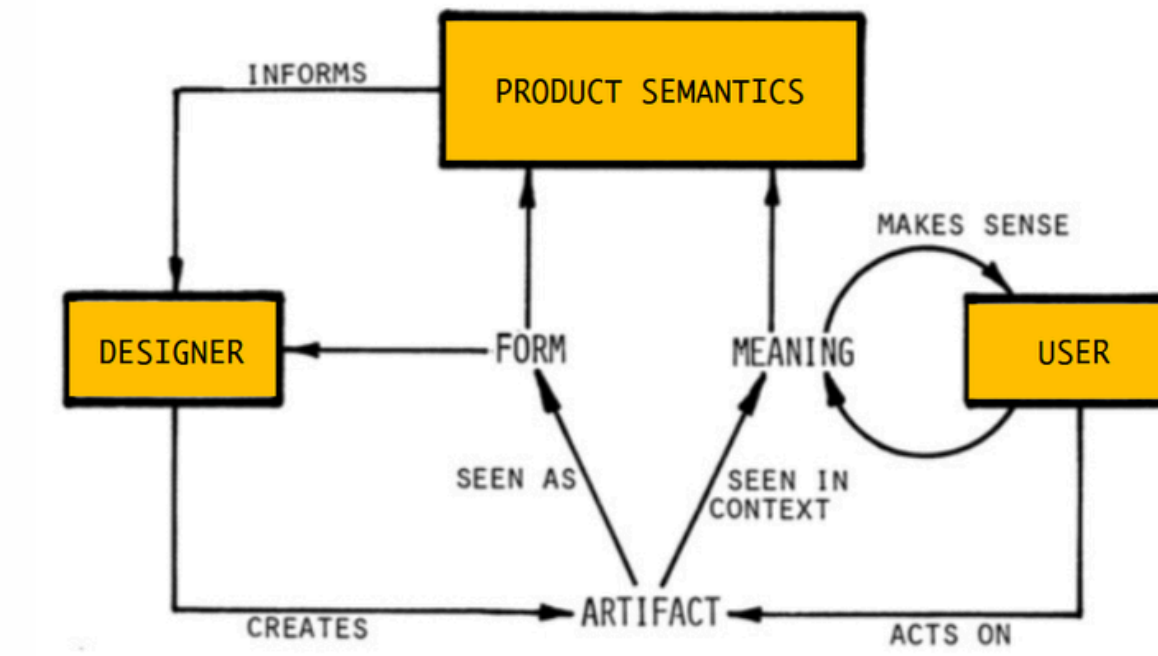
Impact on apple

Product Semantics -core idea

- Design is not just about form or function
- Design is about meaning and sense-making
- Products gain meaning through:
 - Use
 - Context
 - Culture
 - Personal experience

Design as sense-making (Klaus Krippendorff)

- “Design is making sense (of things)”
- Meaning is:
 - Subjective
 - Interpreted differently by each user
- Designers cannot control meaning fully



Main paradox:

- Products must be new, yet recognizable

What is Product Semantics?

- Study of what products mean to users
- Not a style or movement
- Focuses on:
 - Symbolic qualities
 - Cultural embedding
 - Social interpretation
- Exists between designer intention and user interpretation lecture week 9

Form follows meaning

- Critique of modernism’s “form follows function”
- Proposes:
 - Meaning comes before form
 - User interpretation matters
- Designers must design for context and experience, not just function.

Sense-making

- Unfamiliar products: users ask
 - What is it?
 - How does it work?
 - Who uses it?
- Familiar products: meaning shifts to
 - Memory
 - Emotion
 - Identity
- People perceive objects as meaningful things, not neutral forms lecture week 9

Products & Practices – key concepts

- Acquisition – why people buy products (identity, novelty, social comparison)
- Scripting – how design guides or restricts user behavior
- Appropriation – users adapt or misuse products beyond design intent
- Assembly – products exist in systems and collections
- Normalization – how new products become everyday objects
- Practices – products and human routines shape each other lecture week 9

5: POSTMODERNISM

Ambiguity & Product Metaphors

POST-MODERNISM



Exploration with memphis products inspiration



Flamingo

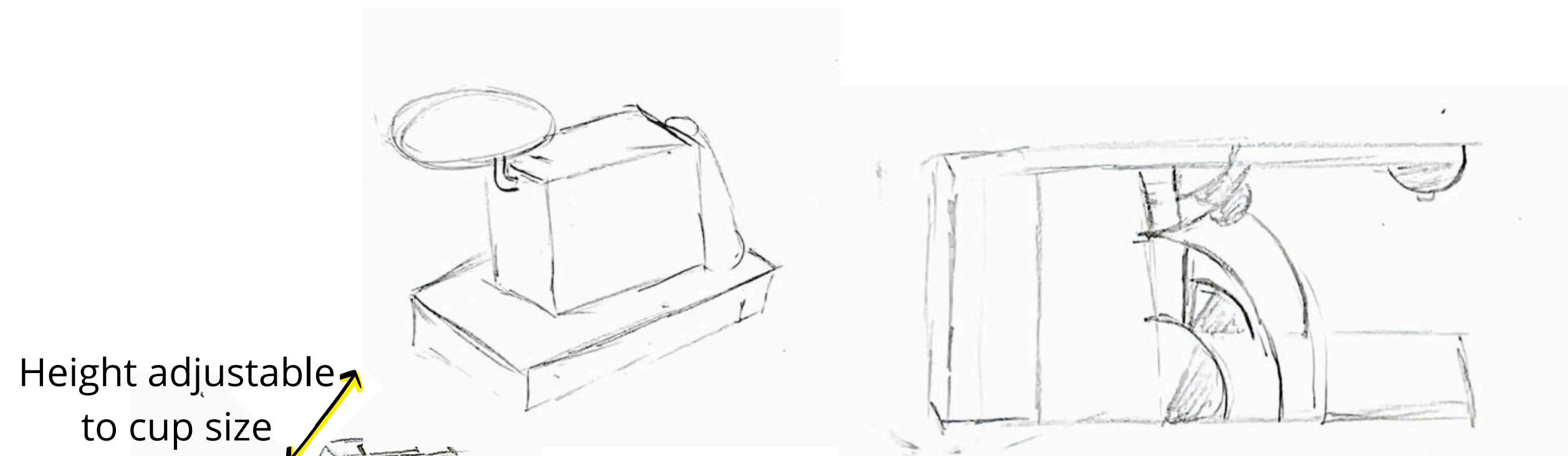
Kristall



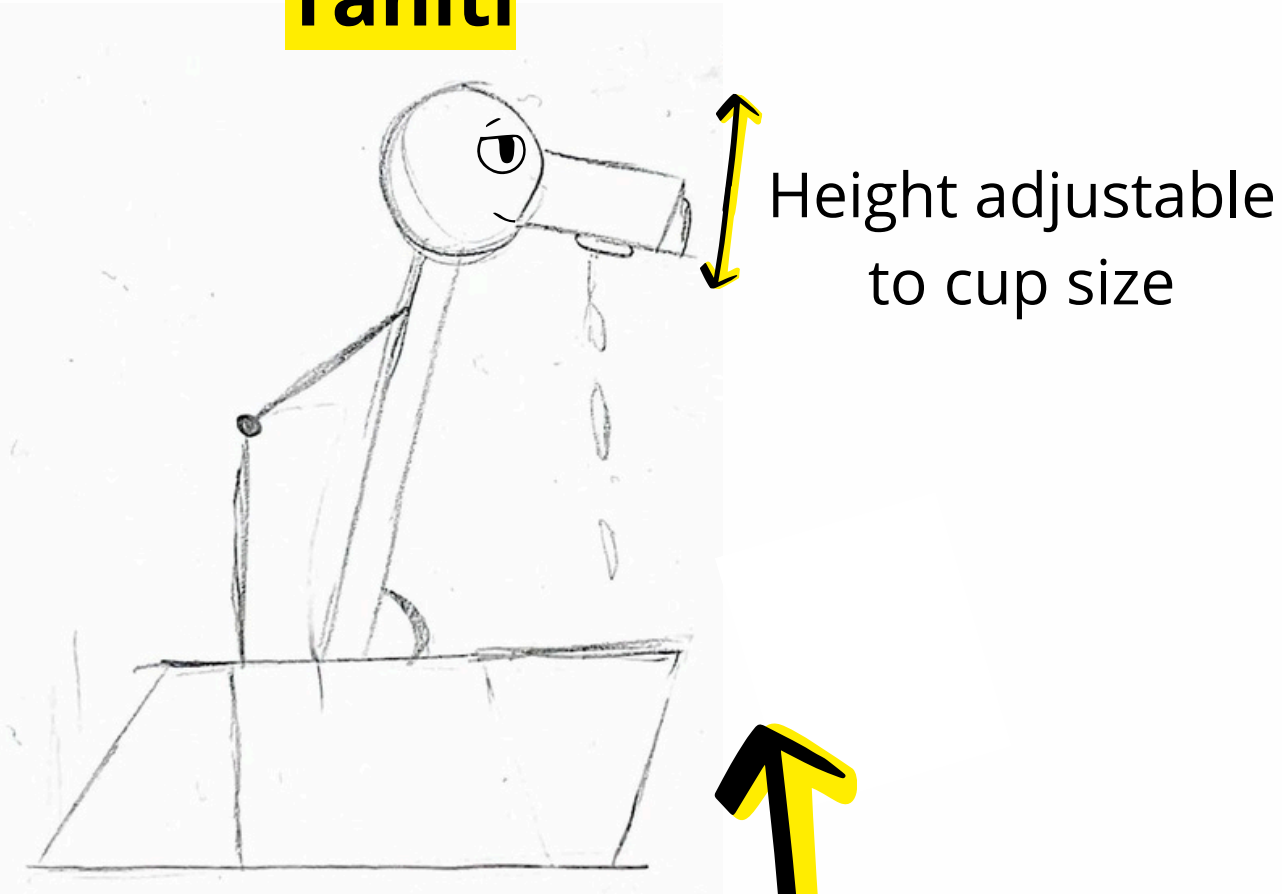
Saragoza



Tahiti

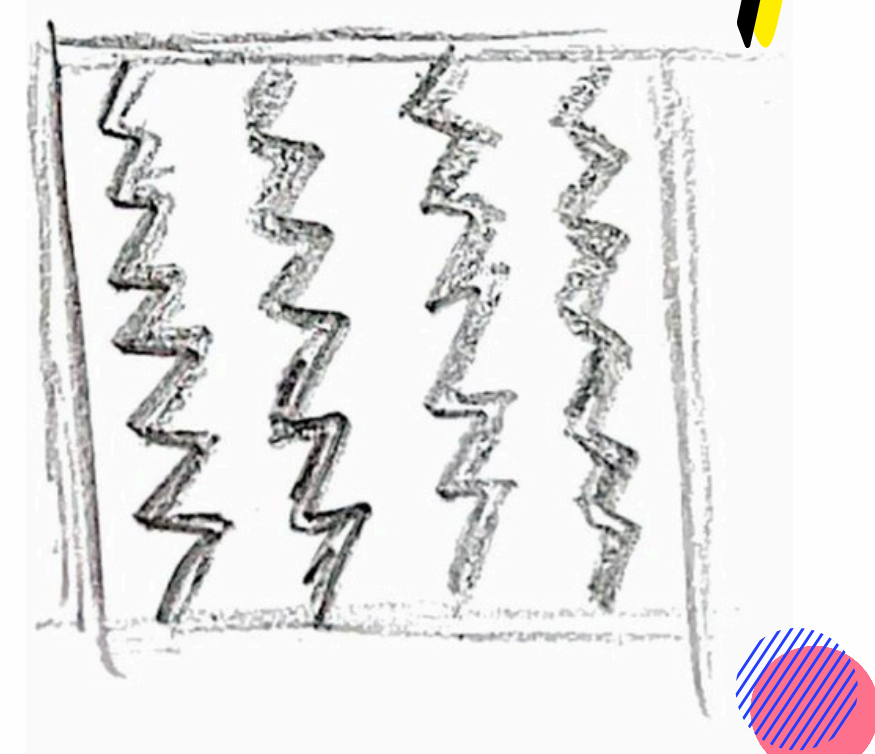


Height adjustable to cup size



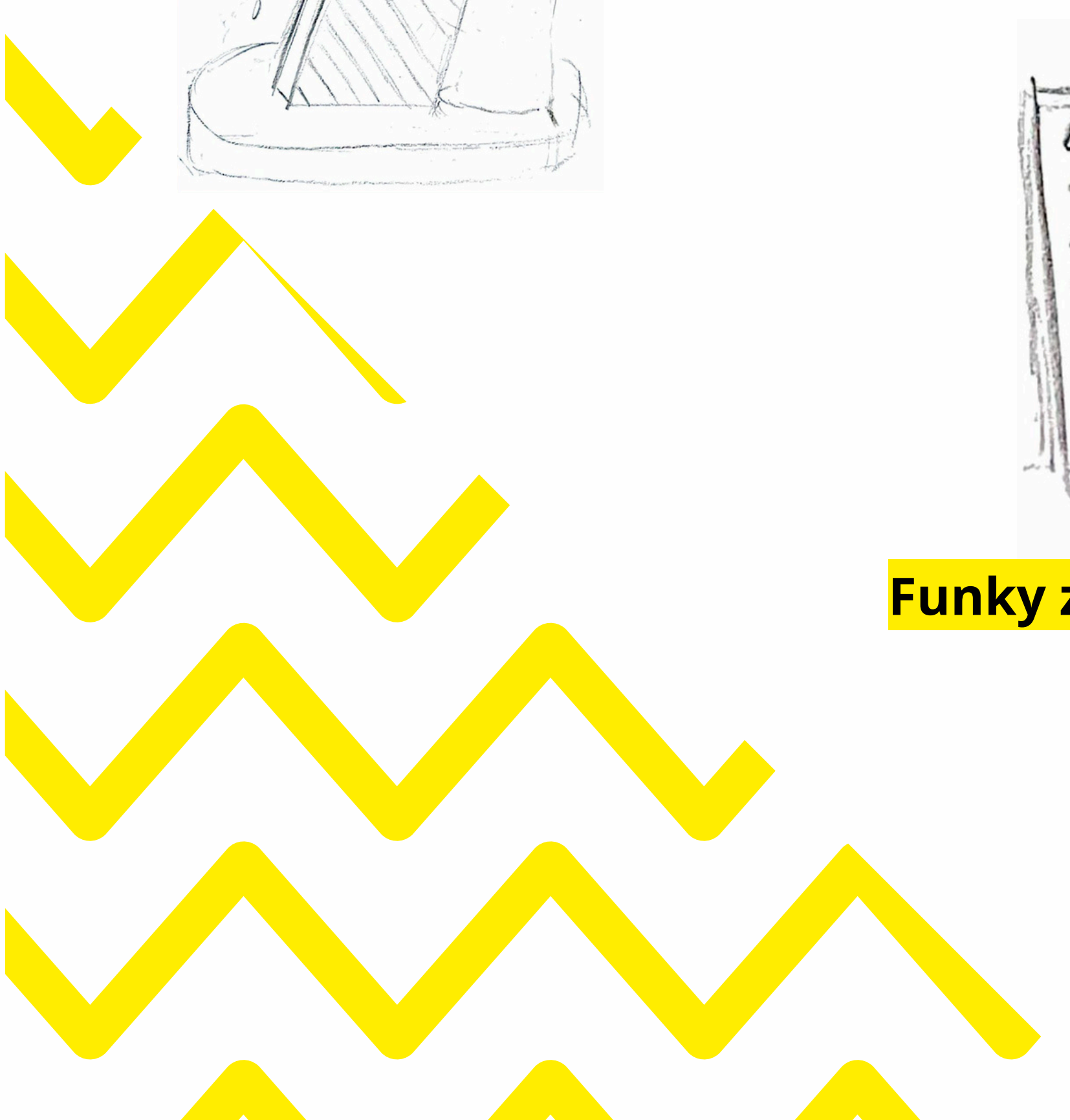
Height adjustable to cup size

Petts- Machine does what it wants! Turns off when tired (overused). Gets grumpy/refuses to make coffee when not getting attention. Has a bird shape.

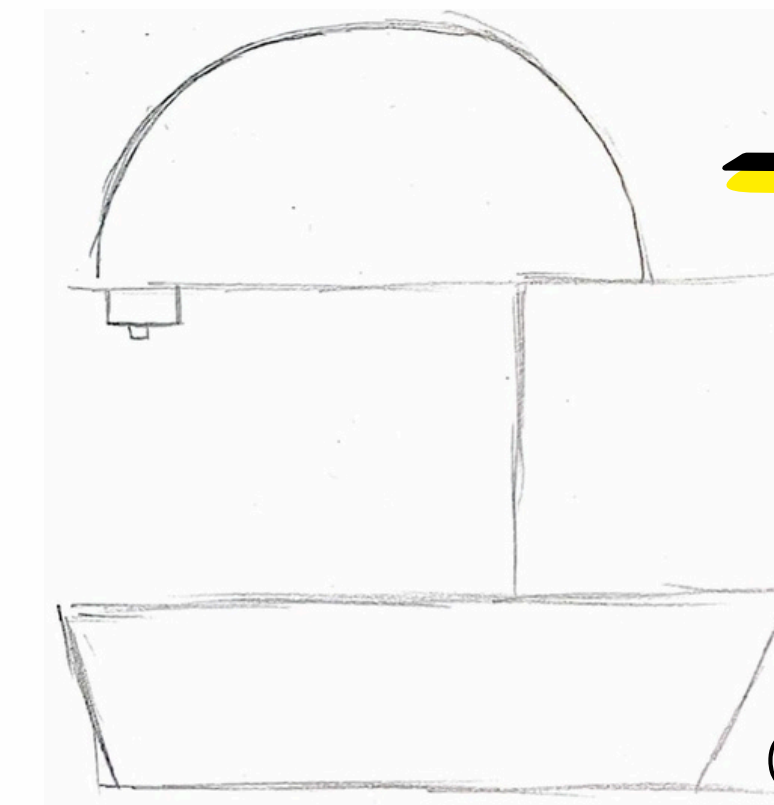


Funky zigzag pattern

Used as the drip tray



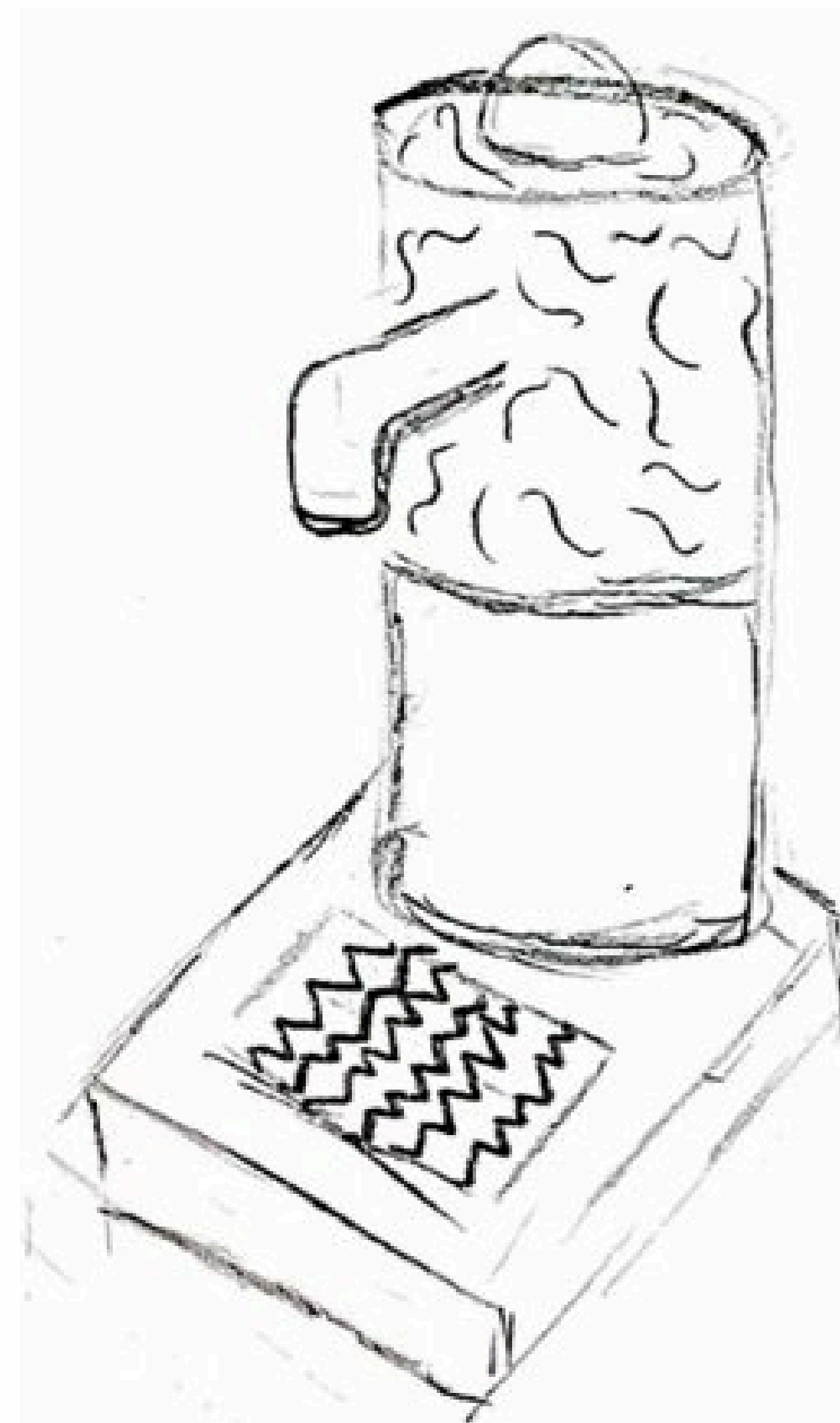
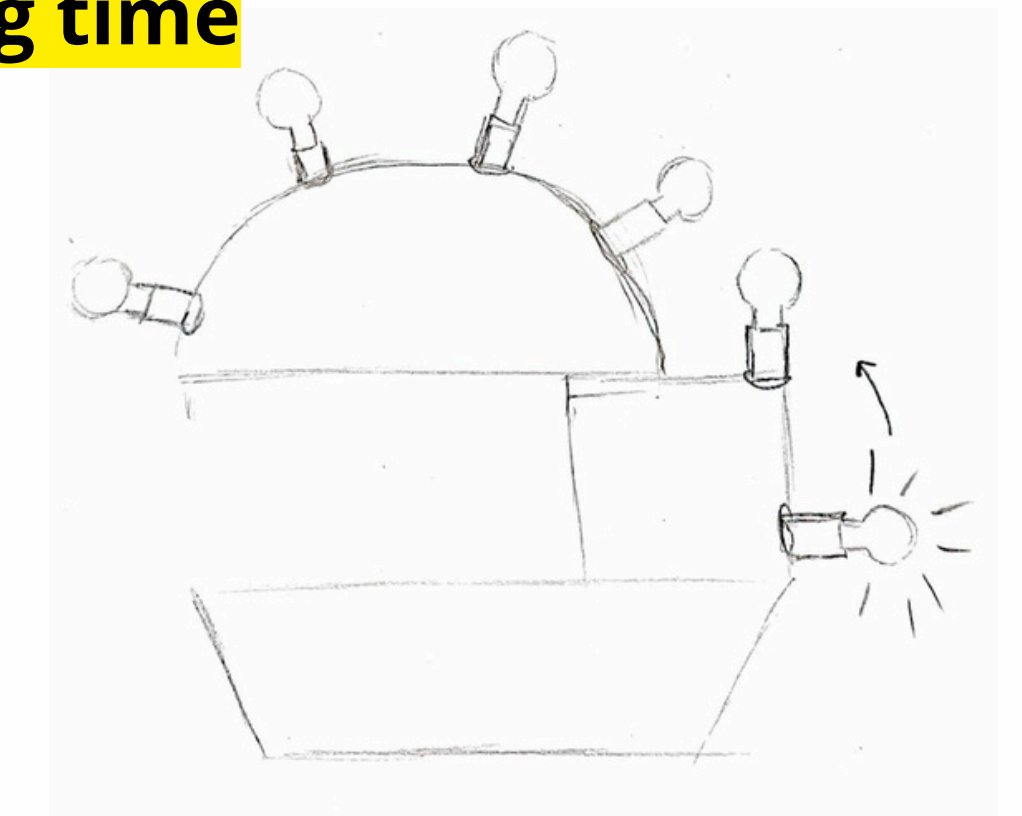
Exploring with shapes



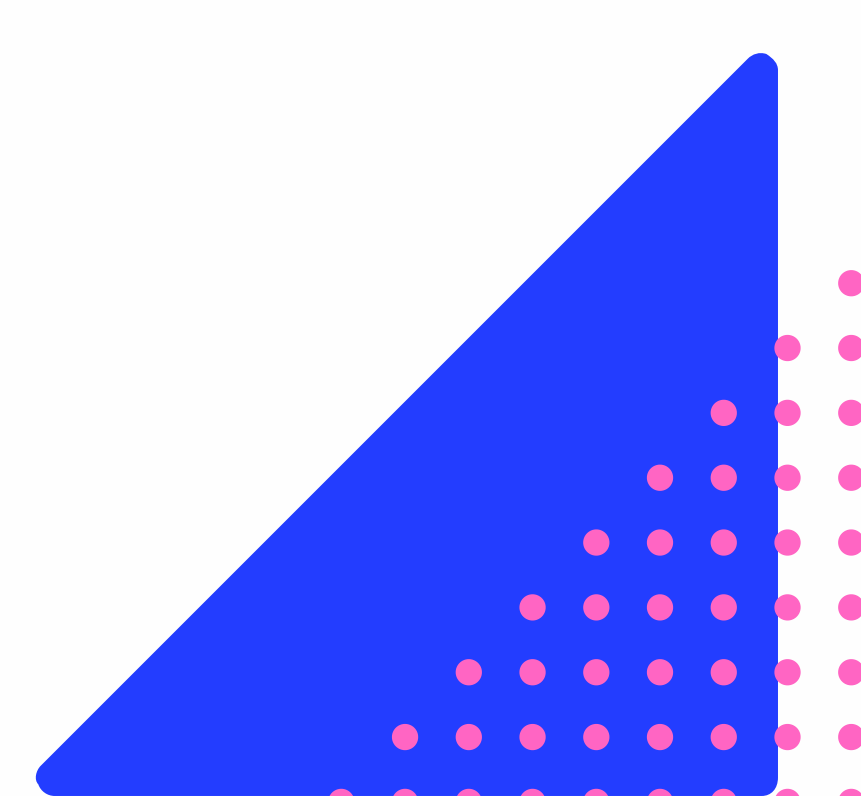
Top looks like "the super lamp"



Ordered lights could be used to show: **Brewing time**



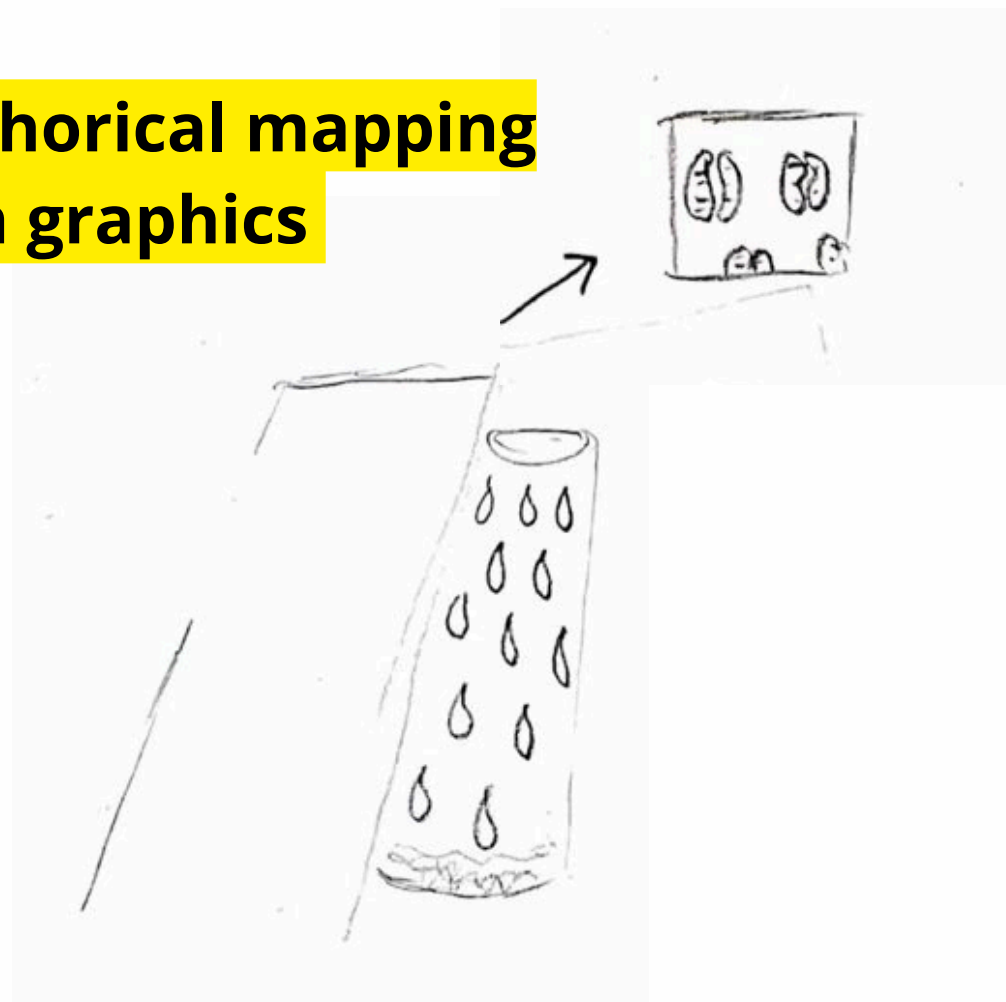
Defamiliarization- Brewing times slows down when machine decides you have had enough in a short time



AMBIGUITY & PRODUCT METAPHORS

Exploration-Referencing coffee/ingredients

Metaphorical mapping through graphics



Using funky patterns to reference the ingredients and where you add them. The water pattern is on the water tank and the coffee beans show where to put your coffee-pod.

Pragmatic intention: Providing product identification → Shows what goes where, and what it is used for. Conveying information about how the product is used and visual guidance for operation.

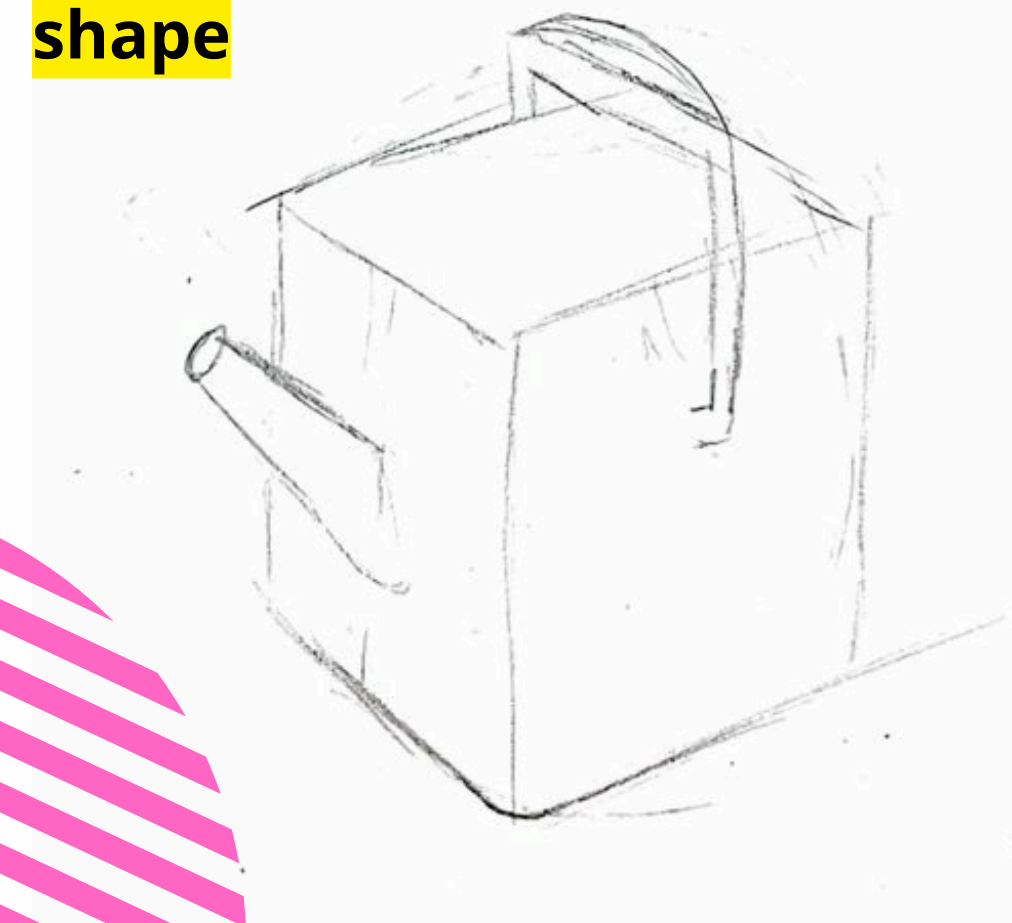
Metaphorical mapping through shape



The shape of the machine is similar to a coffee mug- showing what it is used for directly.

Pragmatic intention: Providing product identification

Metaphorical mapping through shape

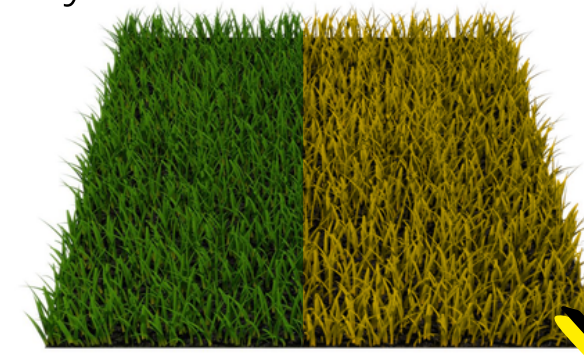


Compartment you put the water in is a watering can. After filling it you put it back in the machine. Pragmatic metaphor: mapping directly to the functional act of adding water.

Pragmatic intention: Conveying information about how the product (element) is used.

Nourishing yourself like a plant.

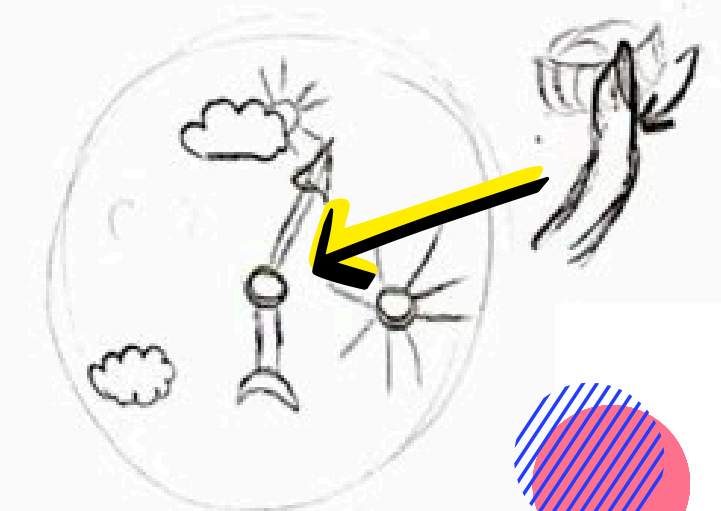
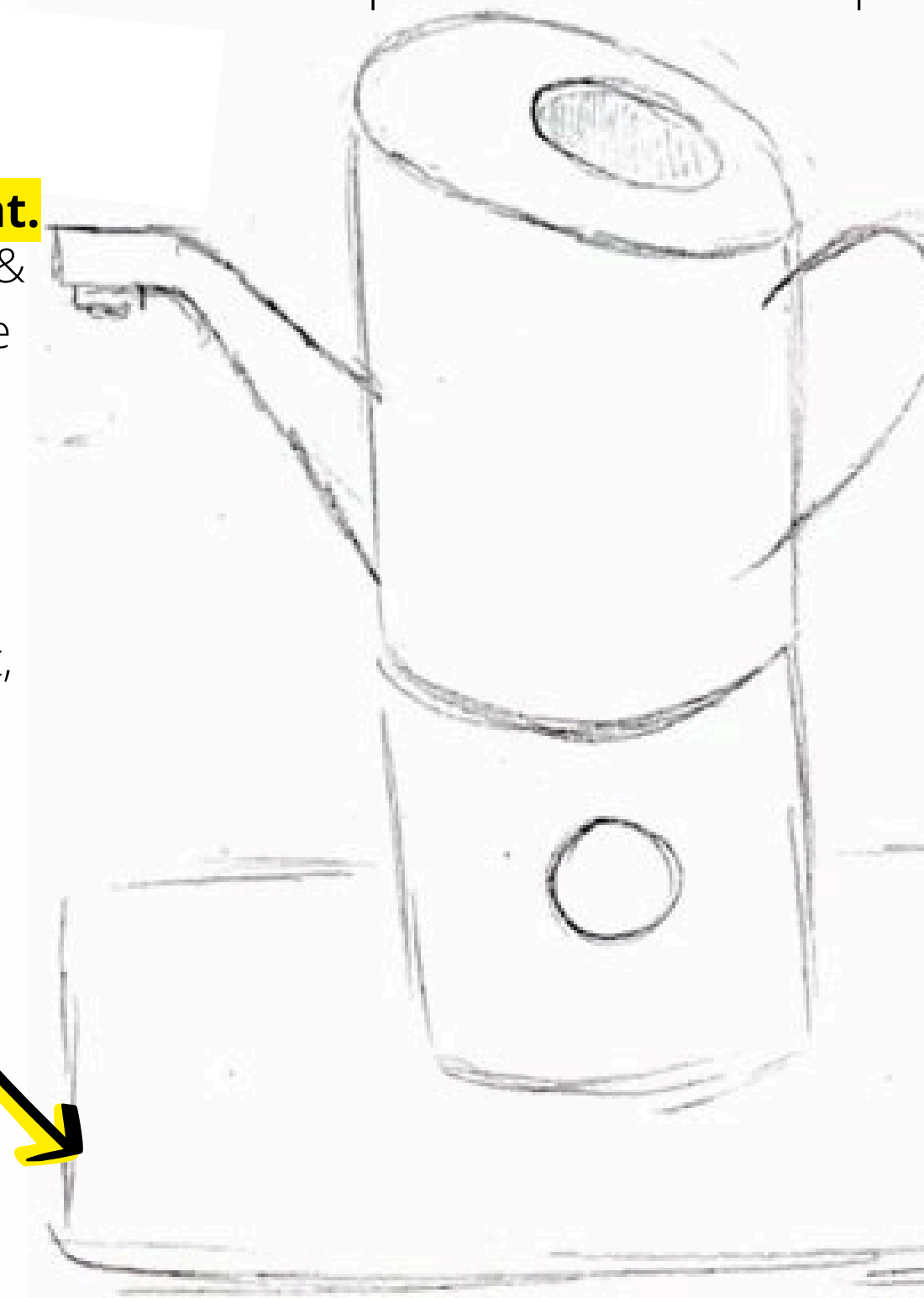
Experiential intention: Prose & poetry (telling a story through the product) + Ideology. Creates a narrative (humans as plants needing coffee to grow) and embeds a conceptual message about dependence, nourishment, and vitality



"Coffee is fuel."

Humans have started to rely on coffee as if they need it to stay strong, growing and active. Just like nature needs to be watered.

The top part of the machine can be taken off, it is the water compartment is the shape of a watering can.



Barometer - pretend instrument used to determine the strength of the coffee. You can twist the knob to show how you are feeling. Do you need extra fuel today?

Experiential intention: fun & witty, "measuring" your energy level or mood. Creating something fun or witty

Drip tray is grass

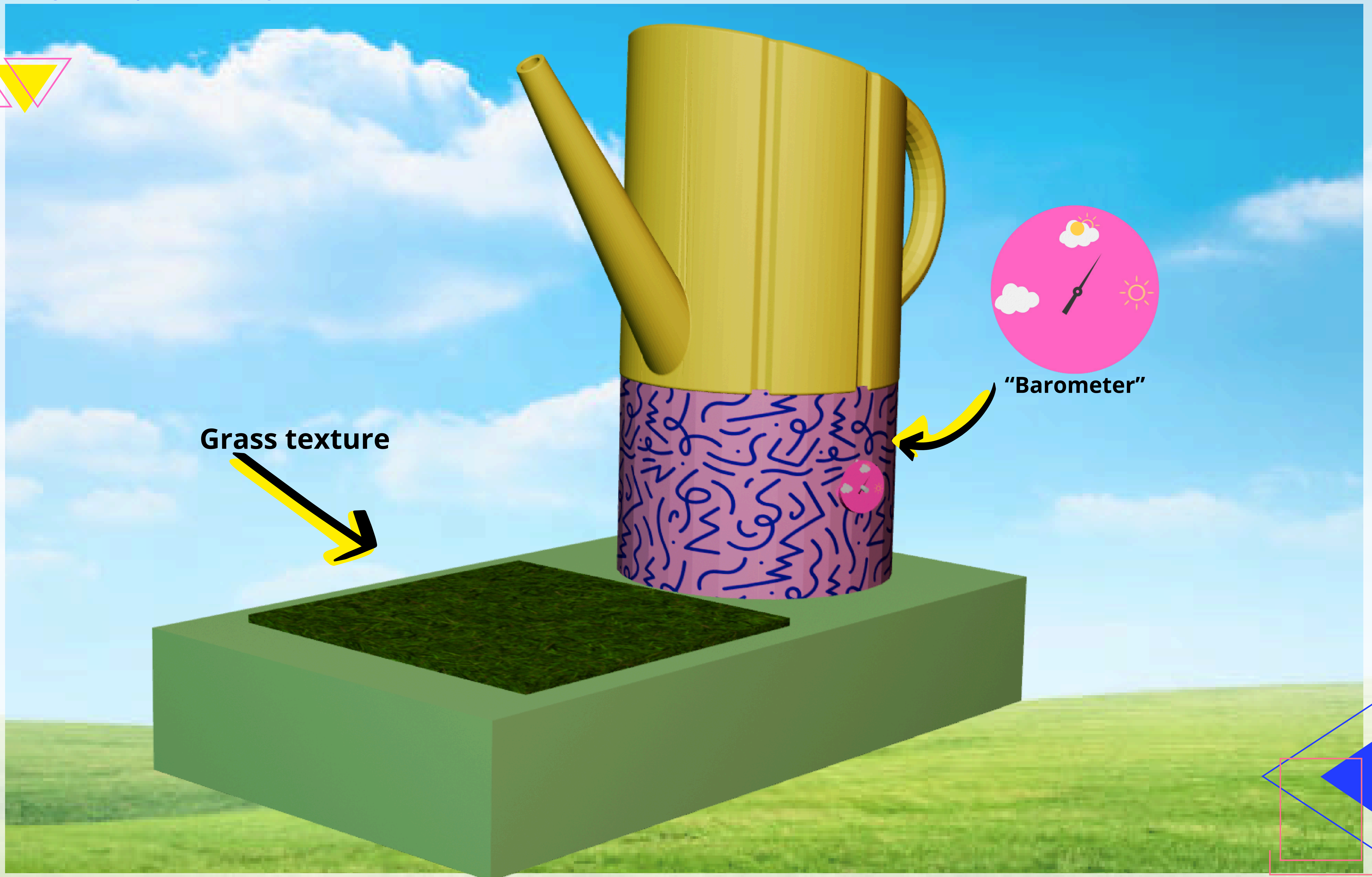
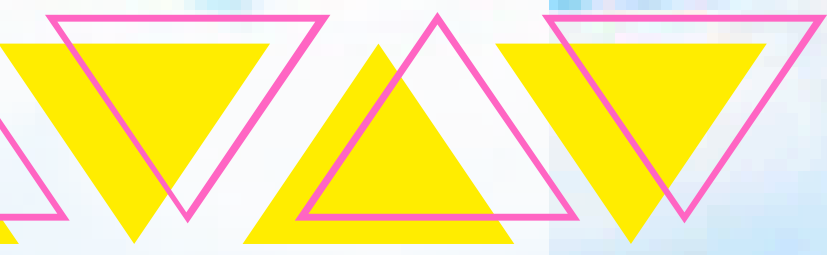
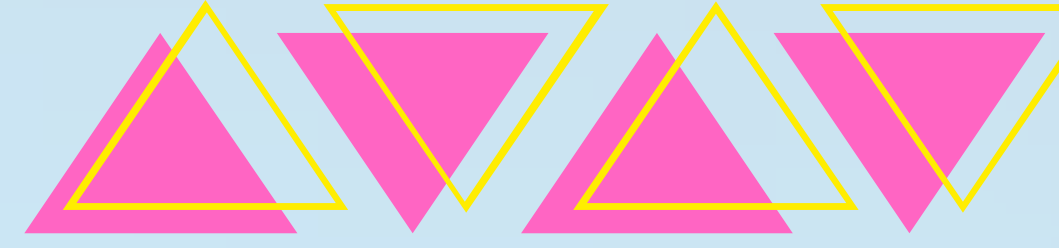
- needs to be emptied when "overwatered". The grass is then a dull color and wet.

Experiential intention: Prose & poetry + fun or witty

Used metaphors

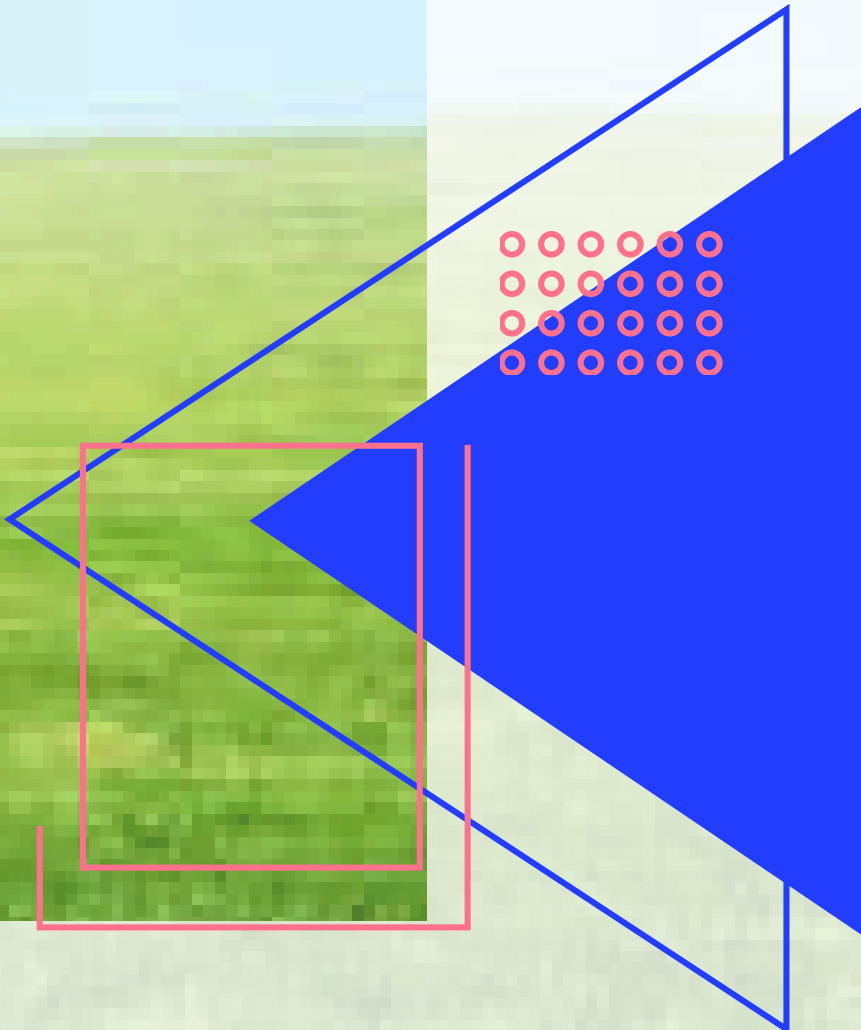
POST-MODERNISM

AMBIGUITY & PRODUCT METAPHORS



Grass texture

"Barometer"



6:SERVICE DESIGN

Co-experience

Service design

Persona: Emma, (Aarhus, Denmark)

Age: 28 | Lives in a small apartment near Aarhus C

Machine: Nespresso Essenza Mini

Marketing assistant at a small creative agency in Aarhus

Works hybrid (2-3 days from home)

Values convenience and sustainability

Uses coffee breaks to stay focused during creative tasks

Values: Sustainability, convenience, rewards

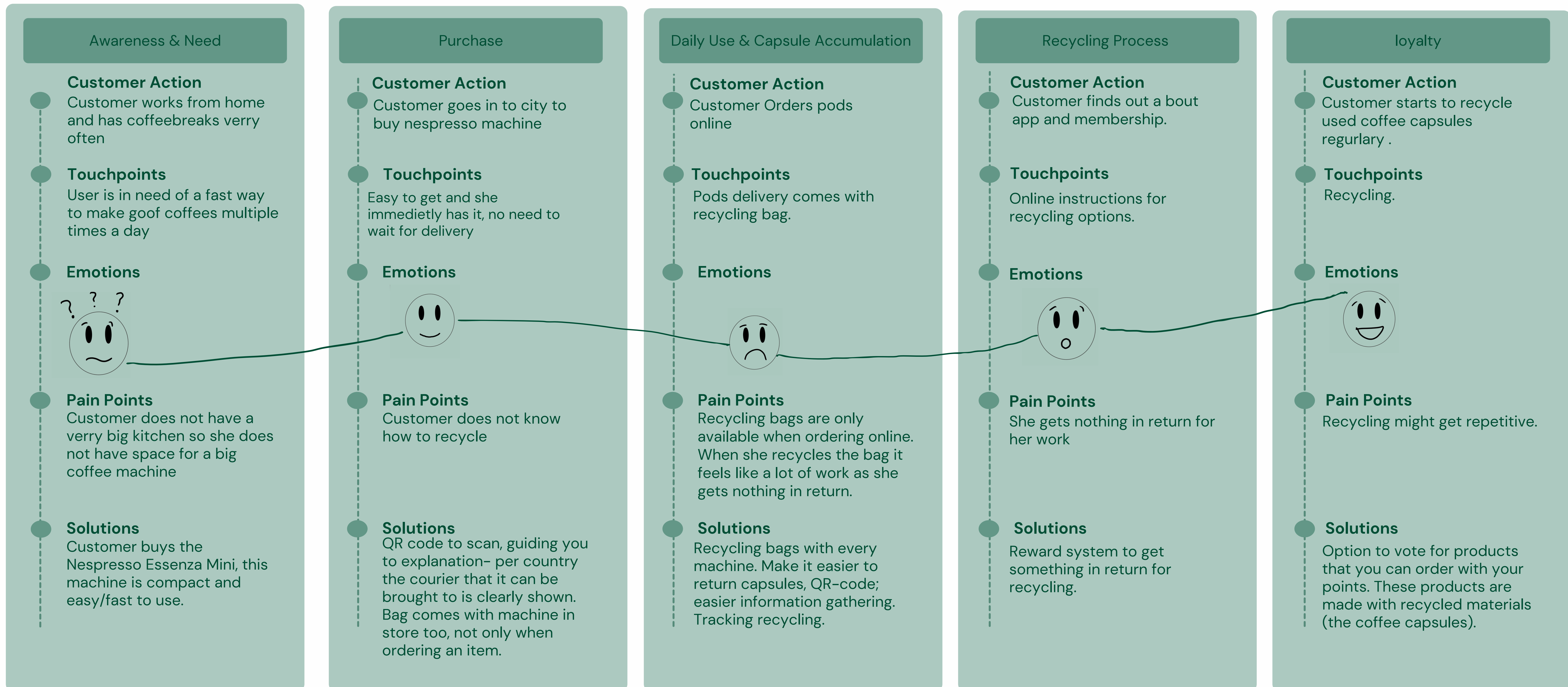
Key Frustration: Recycling feels confusing — there are very few clear drop-off points, and she isn't sure which retailers accept capsules.

Service improvements

The improved service is created from the solution points in the customer journey map above. Within this service users first encounter clearer recycling guidance directly at the moment of purchase. A QR code and simple instructions included in the machine box provide the first introduction to the recycling bag, making the process visible from the start. When pods are delivered, the service reinforces this with packaging that includes straightforward instructions and links to more information in the app, ensuring that users understand how the system works before they even begin recycling.

Once they enter the recycling flow, the experience becomes fully supported by the app: the recycling bag features a scannable QR code that opens an onboarding guide, an interactive map of certified drop-off and pickup options, and an in-app confirmation system that acknowledges each recycling action. Notifications keep users informed about their progress, while points and rewards make the effort feel appreciated. Over time, the system strengthens loyalty by providing opportunities to vote on new (recycled) products. Through these improvements, recycling becomes clearer and more motivating.

Customer Journey Map



Co-experience

Adding new features can create value collectively: individual recycling actions contribute to city-wide challenges and shared sustainability goals. Users see themselves as part of a community, and the meaning of their impact is shaped by what everyone achieves together. The experience becomes social, motivating, and mutually reinforcing.

Concept

A community-focused recycling experience built into the Nespresso app. It makes capsule recycling simple by guiding users through clear local instructions and rewarding each returned bag with credit points. Every contribution updates both the user's personal impact and the community's shared progress. Through collective recycling challenges and the ability to view each other's personal achievements, users see how their individual efforts connect to a larger shared mission.

Storyboard

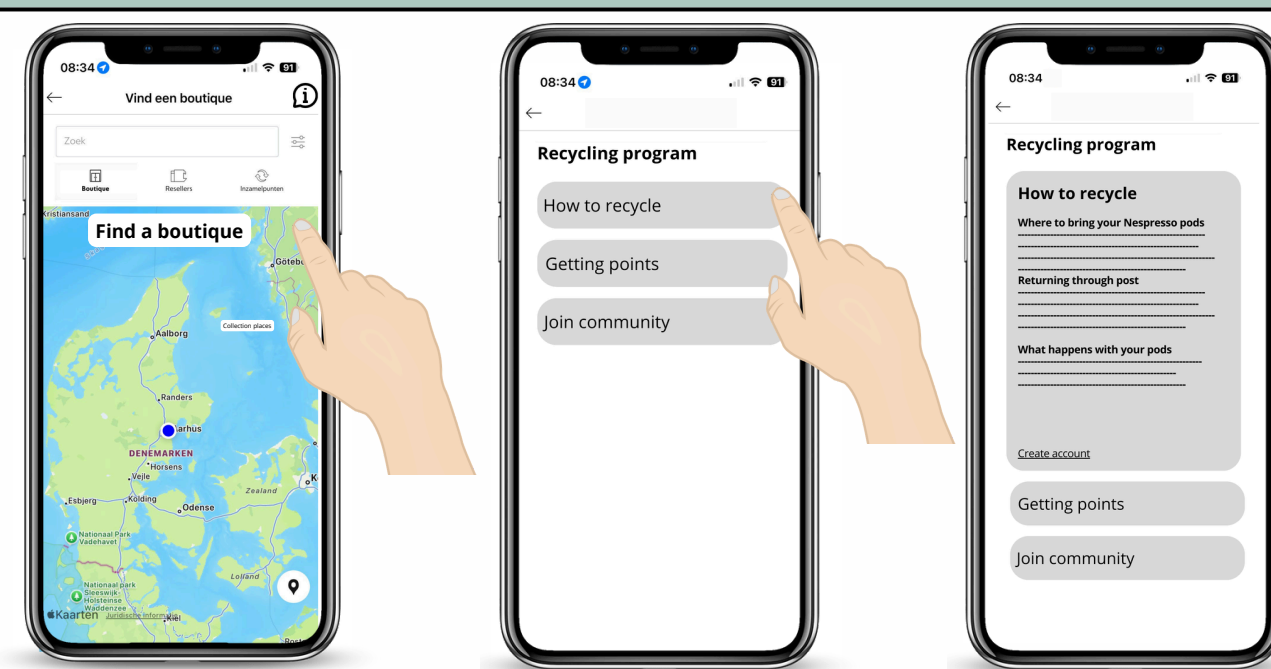
Emma makes coffee throughout the day while working from home. Her used capsules accumulate quickly, she would like to recycle them!



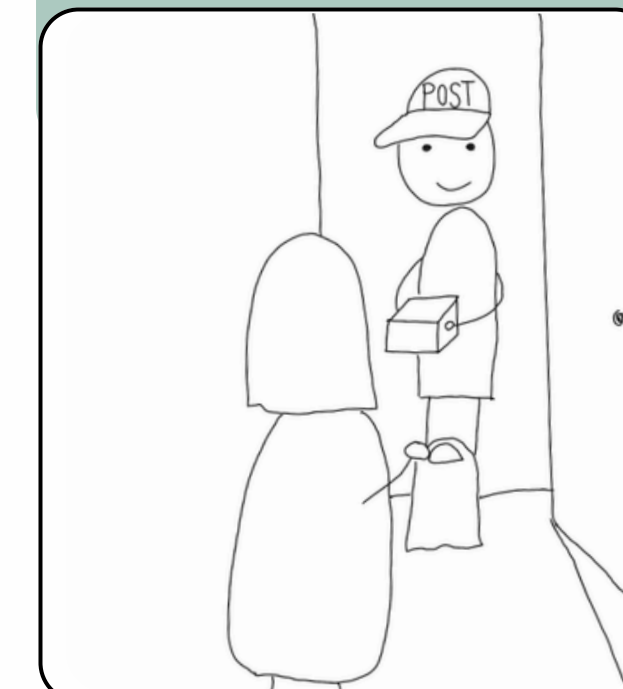
After looking online for recycling options, she does not understand and is a bit overwhelmed and confused.



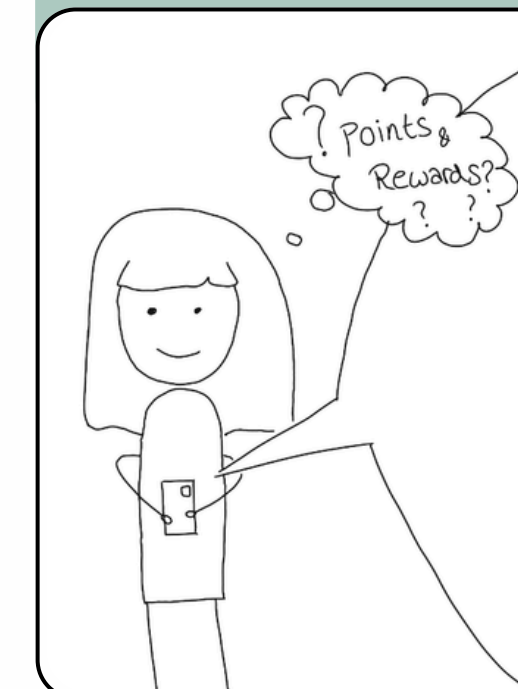
She is able to scan the qr-code on the recycling bag that was inside her nespresso machine box when she bought it. After scanning she is guided to a boutique map, she would like a little more information so she moves to the information button. Here she can clearly get more information on the recycling. She also notices that she might be able to earn points for it, and join a community!



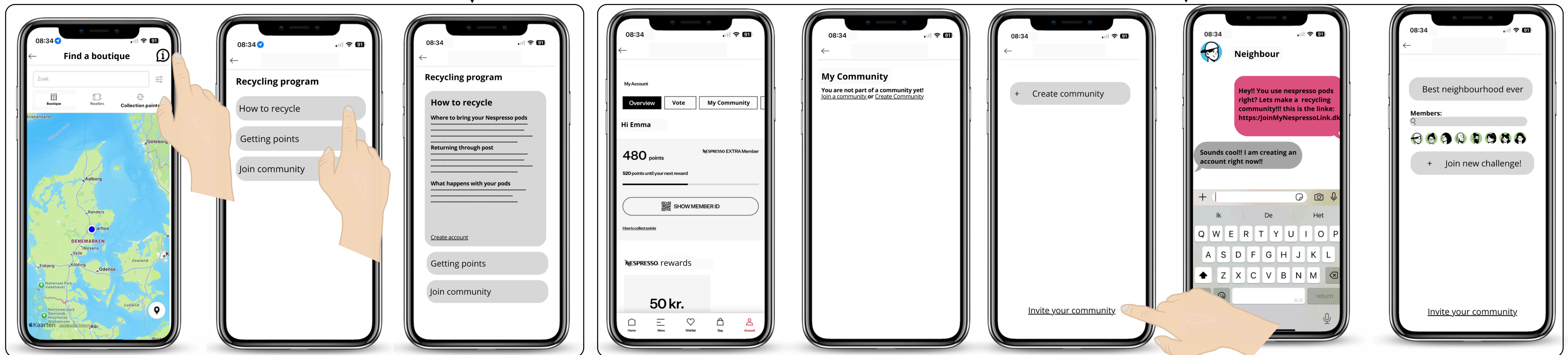
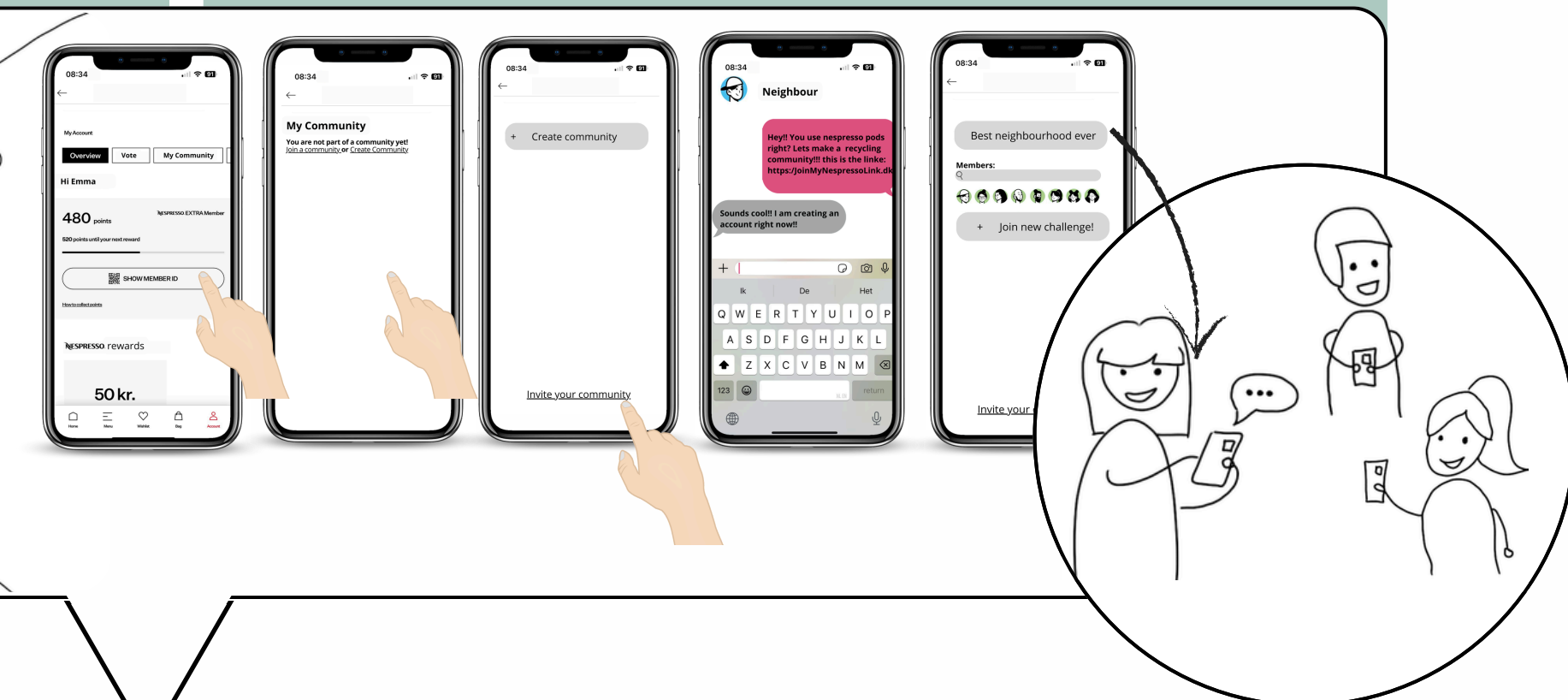
She decides to recycle her pods when the mailman brings her order of new ones! She can just scan the qr code and give it to him!



After recycling her pods, she wonders if it was tracked and if she maybe even earned points. So she checks her nespresso app.



There is a clear earned-points-overview on the app and she notices the community button. As she is not in one yet she is creating one, maybe it will help motivate her neighbors and friends to recycle more too!!! She creates a neighborhood with a lot of people. And together they can join challenges and collect extra points/products!



Organised ↔ Explorative

The service contains organised elements such as the step-by-step QR-guided recycling instructions and structured drop-off or pickup processes. At the same time, it allows exploration through community challenges, dashboards, and voting features where users can discover new ways to contribute.

Synchronous ↔ Asynchronous

Recycling itself happens asynchronously—each user returns capsules at their own pace and time. Despite this, shared challenges and community progress create a sense of synchronous participation, where users feel part of a joint effort unfolding together.

Creation ↔ Interpretation

Users create impact through their recycling, contribute to collective metrics, and vote on future upcycled products. They interpret the significance of their actions through dashboards, progress visualizations, and challenge results that help them understand their role in the community's achievements.

Evaluation

To evaluate this co-experience 2 users were provided with the storyboard. They were asked to give their opinions out loud during the walk through of this storyboard, and afterwards questions were asked.

Example questions:

- What is your first impression of this service?
- Would you use this service?
- How do you feel about the social aspect of this service?
- How would you feel more connected to a community?

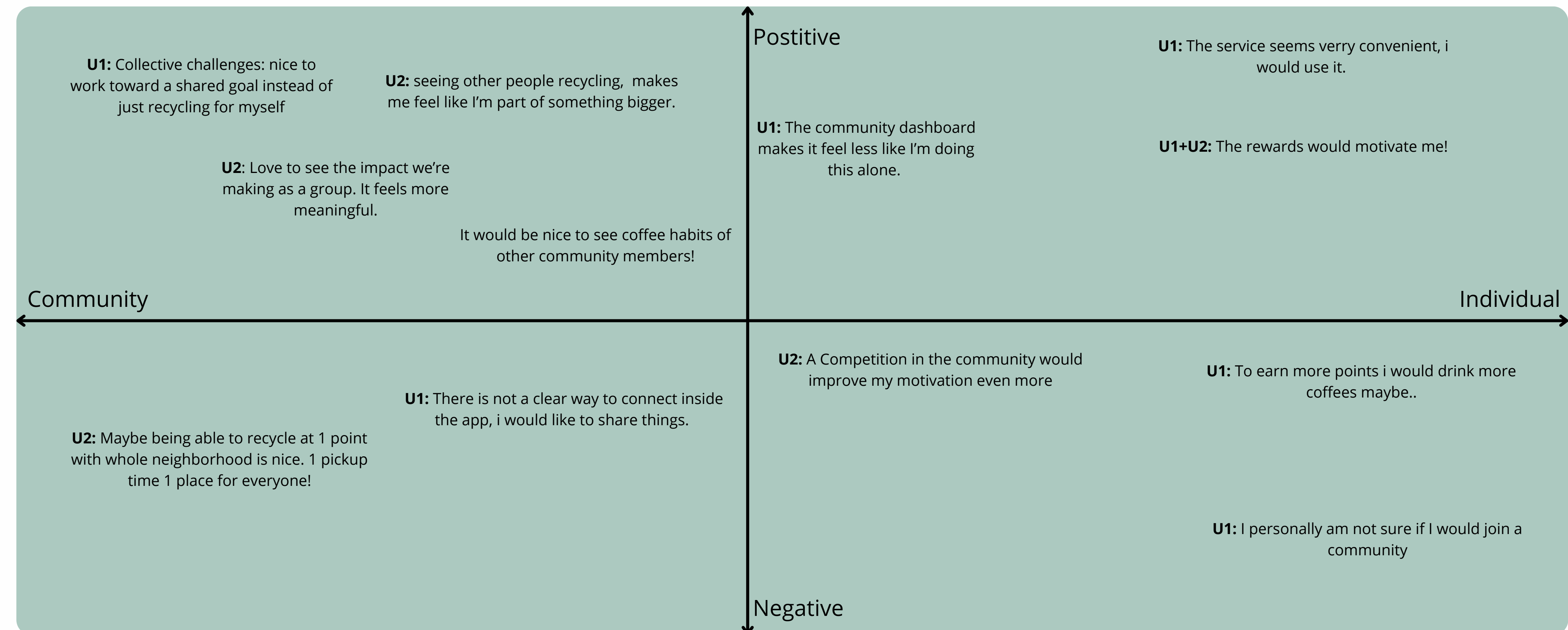
Info on participants:

U1: Regularly drinks coffee, uses Nespresso machine

U2: Drinks coffee (less regularly), familiar with Nespresso machine but does not have one.



Evaluation feedback mapping



Processing

The most relevant improvement points/quotes from the evaluation were mapped on a figure with 4 axes. They have been ordered by how positive/negative the points were (about the current interface) and if they were on the individual/community experience. In this way it is easier to identify what can be done to improve the co-experience on a community level and individual.

Further development

Extra features on the interface could strengthen community connection by allowing users to post on a shared dashboard, where they can also exchange coffee recipes and tips. A neighborhood-based recycling option, one pickup time and one shared drop-off point, could make the process more convenient. This simultaneously reinforces group participation. Since the current concept lacks a clear way for users to directly connect in the app, adding social features such as sharing posts or commenting would deepen the co-experience. Lastly, introducing friendly competitions within the community could further boost motivation and make sustainable actions feel even more engaging and fun.

7:ECO/SUSTAINABLE

Design

SUSTAINABLE/ECO DESIGN

Analysis of current product

Materials

- Made from mixed plastics (ABS, polycarbonate), aluminum internal components, electronics, silicone gaskets.
 - the housing is ABS.
 - the water tank is PET-based plastic (transparent) not the same polymer as the housing.
 - these plastics cannot be recycled together.
- Many materials are hard to separate → low recyclability.
- Nespresso promotes capsule recycling, but the machine itself is not designed for disassembly.

Energy

- Uses significant electricity for heating.
- Standby mode is efficient, but no passive/low-energy option.

Repair & Maintenance

- Very few replaceable parts.
- Sealed casing → repairs require specialized service or machine replacement.

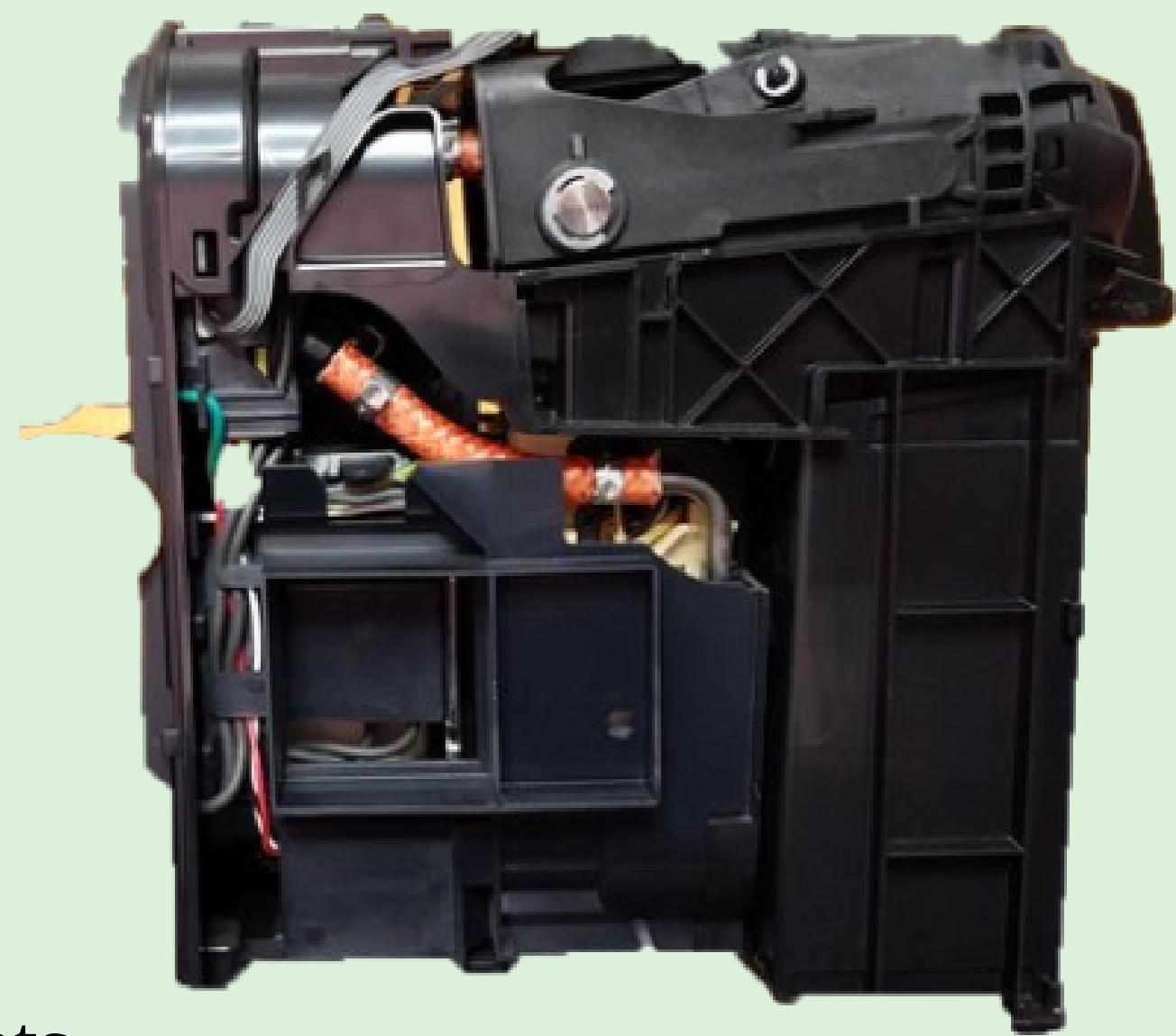
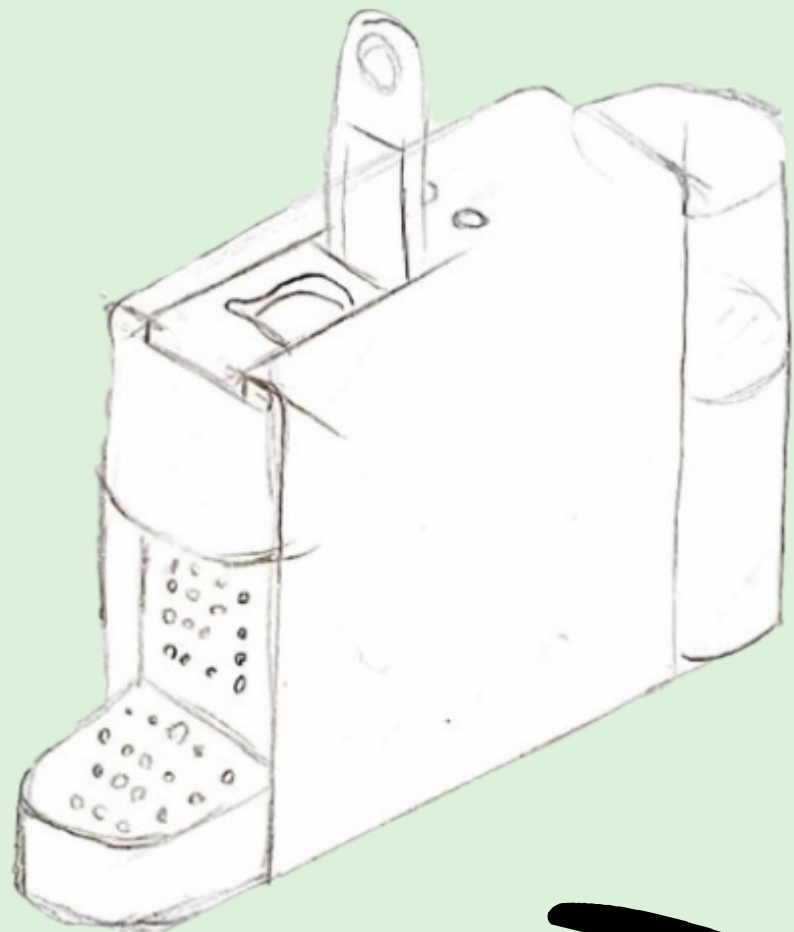
End-of-Life

- Difficult to recycle due to mixed materials and glued components.
- No manufacturer take-back scheme for machines (only capsules).

User Context

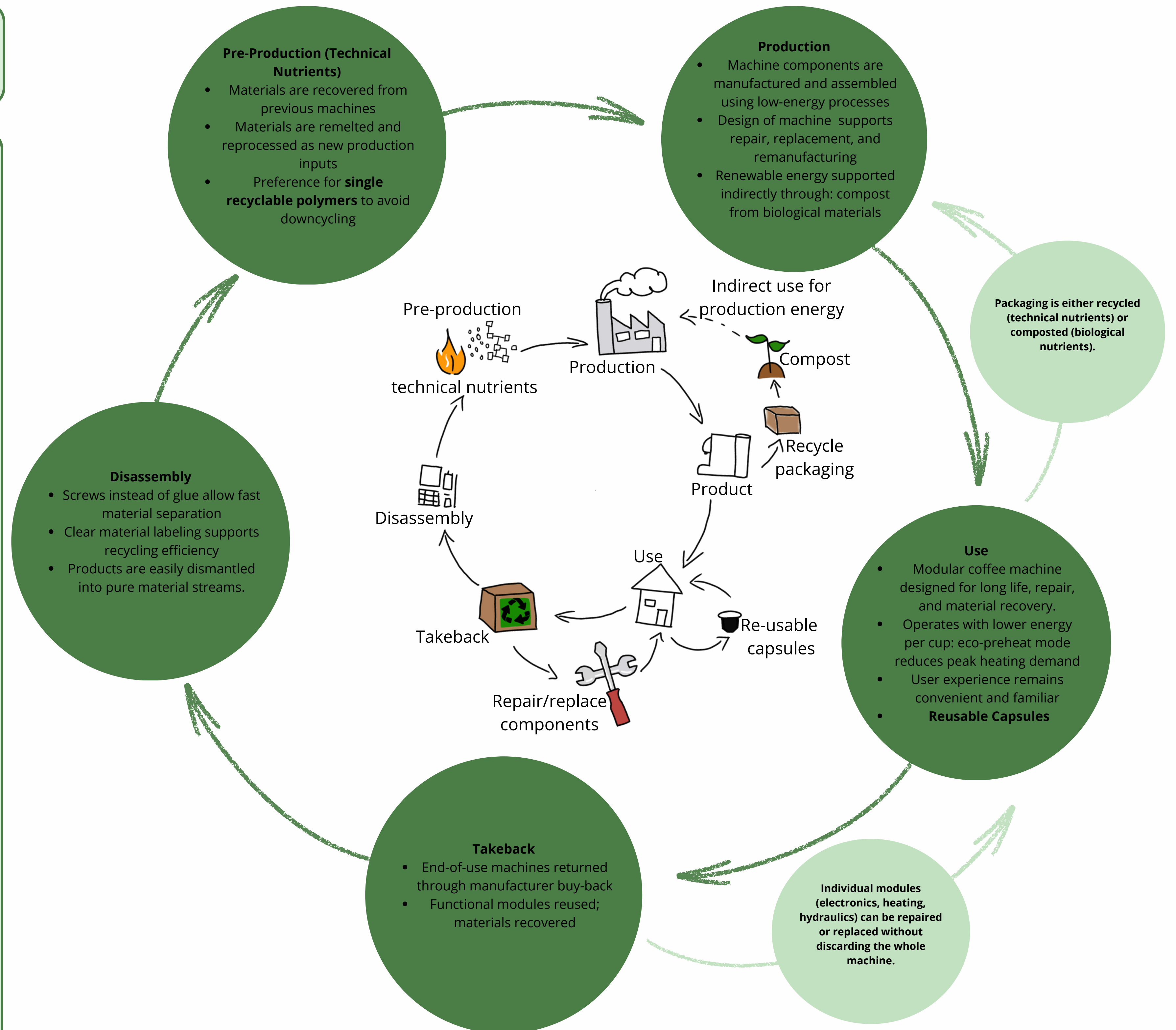
Western context:

- High access to recycling, but low motivation for repair.
- Consumers expect convenience and low cost.
- Pods are convenient but wasteful.



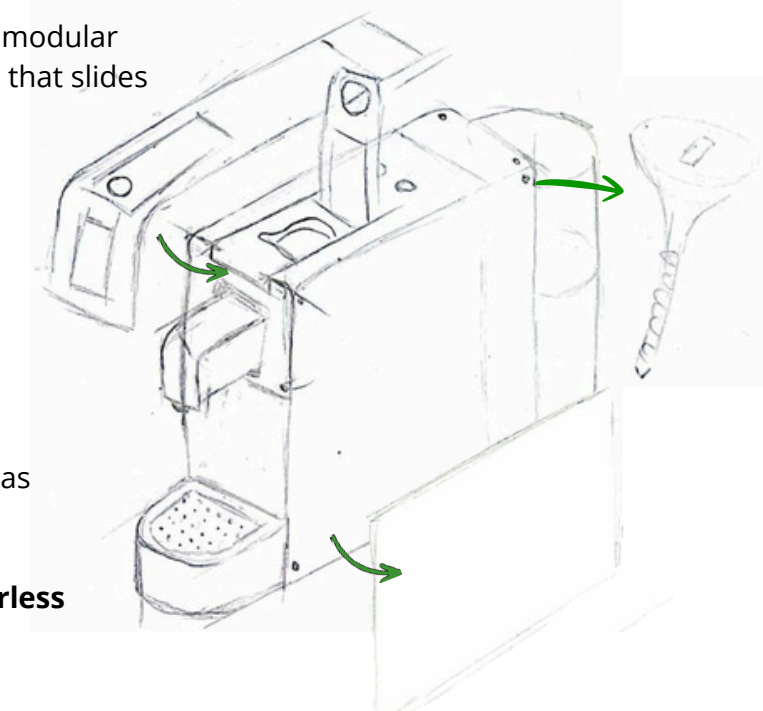
Opened up

Hard to open up
Lots of different components
hard to disassemble
out/replace



Redesign for easier disassembly

Modular repairable body, modular panels instead of big shell that slides off.



Separate components connected with small screws, making it more user friendly to disassemble

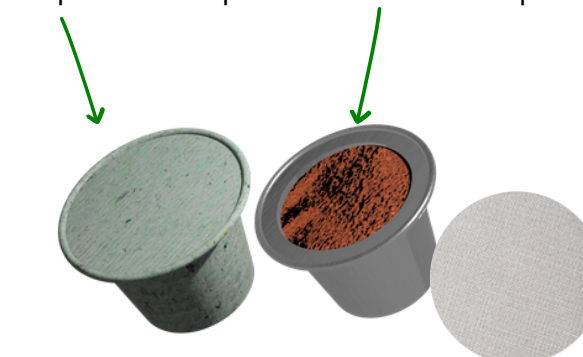
Inside of machine has separate blocks of electronics, easy to disassemble; **Solderless Connectors**

Sustainable use of capsules options

Easier return capsules

- Can not force everyone to do returns, only try to motivate
- Aluminum can be recycled easily, saves energy instead of making fully new aluminium
- Convenient to not have to clean

Compostable capsule vs Reusable capsule



- Compostable capsules**
- Still a little more waste but lower impact waste (compostable)
 - Nice to be able to compost together with grounds
 - Convenient to not have to clean

- Reusable capsules**
- can be part of the machine package
 - less waste, coffee grounds are compostable
 - Just clean the reusable capsule

DATSCHEFSKI'S ENVIRONMENTAL INNOVATION PRINCIPLES

Cyclic (Technical & Biological Nutrients)

The redesign applies cyclic thinking through closed technical and biological loops. The machine housing and internal parts use mono-material recyclable polymers, recovered via a manufacturer take-back scheme, disassembled, and remelted for reuse.

Reusable coffee capsules reduce single-use material waste. Compostable packaging and consumables operate within a biological nutrient cycle.

Alternative Energy, energy demand is reduced not only during production, but also during use. An energy-efficient (longer) heating system lowers electricity consumption per cup.

Material Innovation, the material complexity is lowered through substitution and simplification. Mixed plastics and permanent adhesives are replaced with mono-material polymers and mechanical fasteners, this improves recyclability and supports disassembly and remanufacturing.

Durability, a repair-oriented design that allows individual components to be replaced without discarding the entire product. This extends the functional lifespan of the coffee machine and reduces material waste over time. Possibly modularity could be included, people will be less intrigued to 'upgrade' to a new machine if they can do it in components.

