



Växa

The GIY (Grow-it-yourself) lamp

*Project
by*

*Anushka
Shinde*

Conception

Växa emerged out of a brief of choosing an existing product in the market and envisioning its function, purpose and appearance in 2050. It is a comprehensive project of speculation, worldbuilding, prototyping, designing and positioning the product.

The project went through multiple revisions in terms of the base concept to begin with where midway I scratched the direction I was working towards. A few projects aligning to the current spirit of the project inspired me to take this leap.



I took the Cactaceae from IKEA's current product catalogue and envisioned its purpose beyond organic decoration to something that actively contributes to a mindful interaction between the living artefact and the user. The broader envisioning is of a range of products, out of which Växa is one of the outcomes.

Research

I started understanding Biodesign and the ways of practicing the same right from its core, which led me to different broad categories one could place existing.

// *The article mycography and biodesign by Devon Ward published in Interdisciplinary Practice in Industrial Design, 2024 provides a framework for categorizing different types of biodesign projects:*

Utilitarian biodesign
aims to solve problems

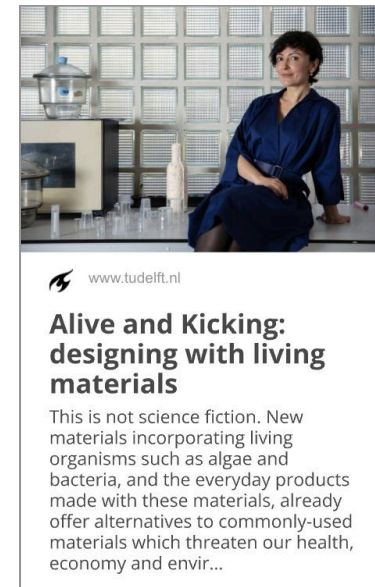
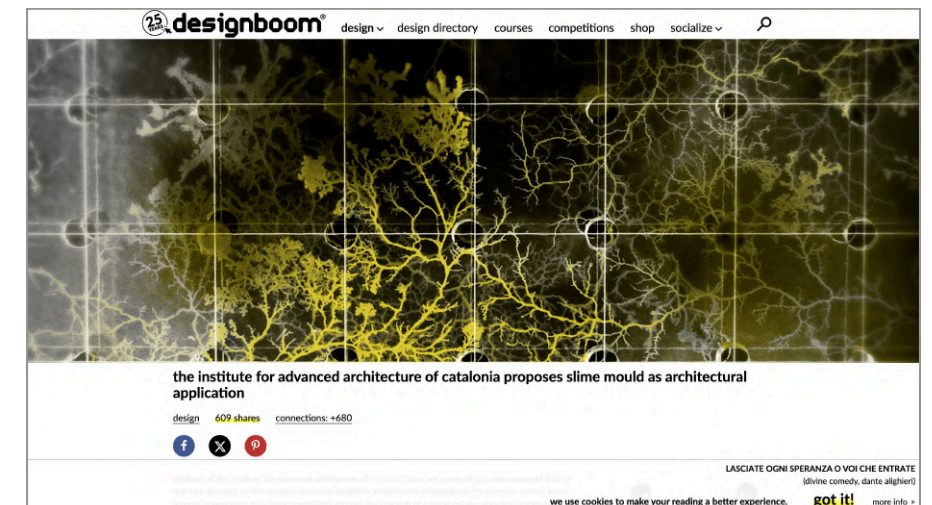
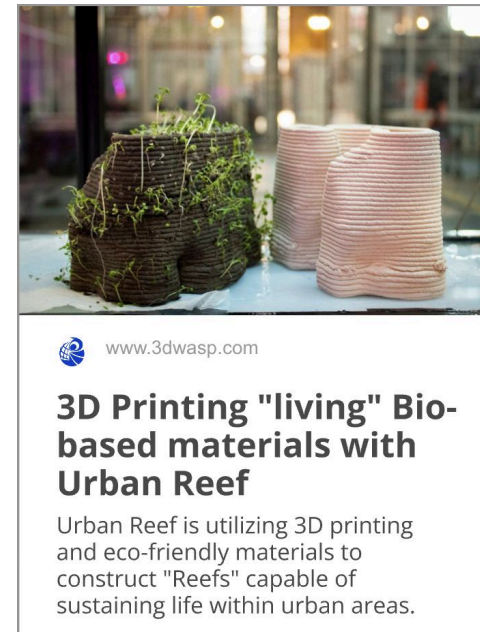
Discursive biodesign
aims to raise awareness
of problems

Material biodesign
produces physical
objects using living
organisms or organic
materials

Conceptual biodesign which
may involve ethical dilemmas,
presents ideas using traditional
design media like diagrams and
videos

This led to some rumination on how do I want the 'bio' matter to contribute in the product I'm designing. It is then when I came across the concept of living artefacts.

// *Living Artifacts: Conceptualizing Livingness as a Material Quality in Everyday Artifacts by Elvin Karana, Bahareh Barati, and Elisa Giaccard proposed a framework based on the premise that livingness can be prolonged into the use time of objects, as opposed to being solely utilized at the design time. By doing this, artifacts gain new possibilities for responsive behavior, interaction, and expression, blurring the lines between living and non-living matter in daily life, thereby giving rise to a new form of interaction.*



// *Spark of Life, by Teresa van Dongen*

The frame consists of three core principles of:

Living Aesthetics focuses on the experience of change in a living artifact through the organism's growth and reproduction, which can manifest in altered sensory qualities, form, and movement over time.

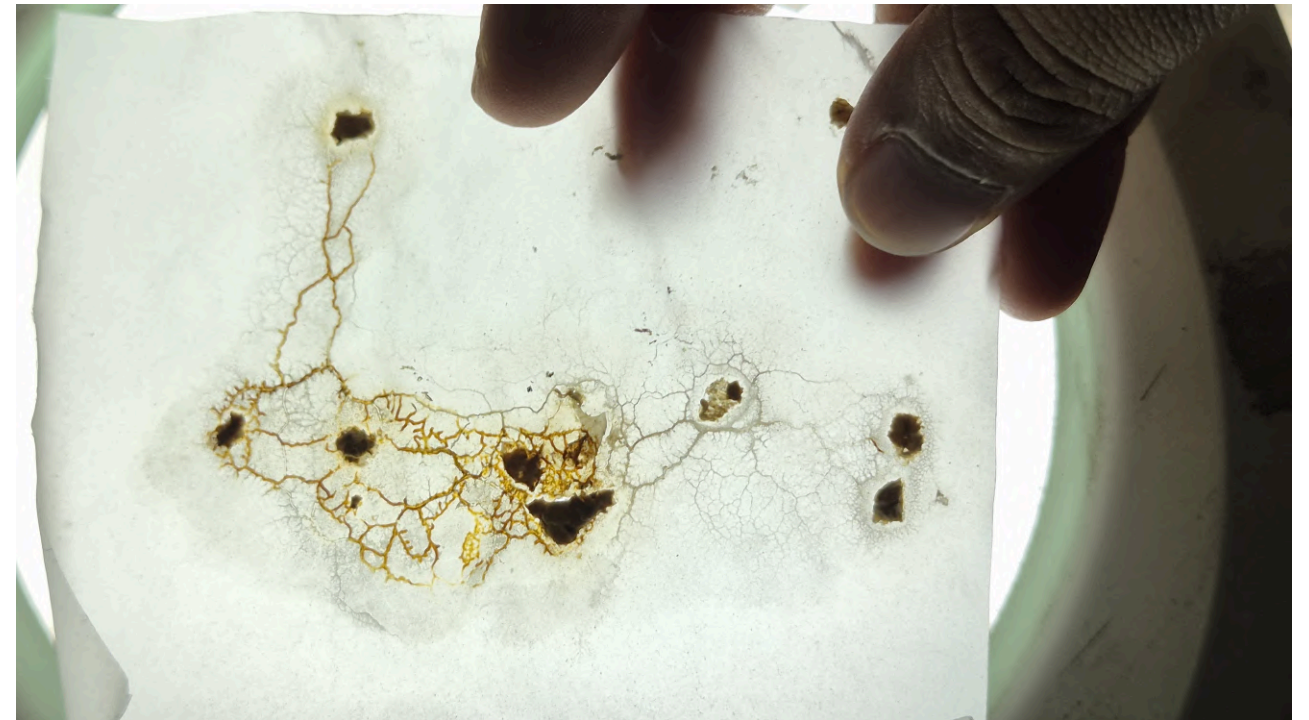
Mutualistic Care refers to the reciprocal relationship between a living artifact and its user, where the user must act upon the artifact for it to thrive, and in return, the artifact provides continued (functional) benefits.

Habitabilities considers how the living and non-living entities in the artifact's designed environment, both at design time and in the user's environment, condition its livingness by providing a habitat.

Experiential Livingness explores how the livingness of an artifact is perceived and experienced by humans. The dynamic, temporal nature of living materials evokes different aesthetic experiences, semantic meanings, and associations compared to traditional materials.

At this point, I was certain that having the aspect of livingness and continuous evolution within my product is an area I want to position my lamp in.

There can also be an interesting in a branch of interactions that may emerge out of projects like these, a branch that is not inherently Human - centred, but accounts for other relevant organisms within the system. Multispecies interaction design is a topic in recent discussions that has been emerging.



// Experiments done by me for the same project but with different materials like slime mold and mycelium with the ethos of the project in mind.

Worldbuilding

Taking these inferences into a larger scope and scale of things, given that people adopt this system of products on a wider scope, the system thereby forming would be something quite similar to conceiving a Solarpunk world.

Far from a purely fictitious exercise, worldbuilding is necessary in a macro lens for the project as it enables the active exploration and articulation of alternative futures, going beyond simple analysis or 'calculated guesses' to envision plausible scenarios where Biodesign practices integrate living organisms into our lives, fostering mindful interaction and contributing to the hopeful, sustainable vision of Solarpunk

Solarpunk represents a practical approach to addressing contemporary challenges such as climate change, resource depletion, and social injustice. Actionable strategies like community engagement and collaboration, permaculture, innovative tech use etc. once adopted can shift it from fiction to reality.

For a more practical approach, Solarpunk and Industry 4.0 can find synergy for sustainable outcomes. Industry 4.0 supports sustainable manufacturing via methods like circular economy and designing for longevity, aligning with Solarpunk's ethos of reducing waste. Both movements advocate for decentralization, fostering local solutions and production through technologies like 3D printing to cut transportation emissions and support communities. Industry 4.0 tools can also enhance community engagement by enabling collaboration for tailored solutions. Furthermore, Industry 4.0 aids innovative energy solutions such as smart grids and renewables, matching Solarpunk's clean energy vision. While acknowledging potential conflicts like consumerism versus mindfulness, the goal is leveraging technology sustainably without undermining communal values. This practical synergy for local, context-specific solutions aligns with the BIOME project's aim to integrate futuristic practices and promote conscious societal behaviors

Solarpunk is not about finding panaceas; it is about fostering local solutions tailored to specific contexts.

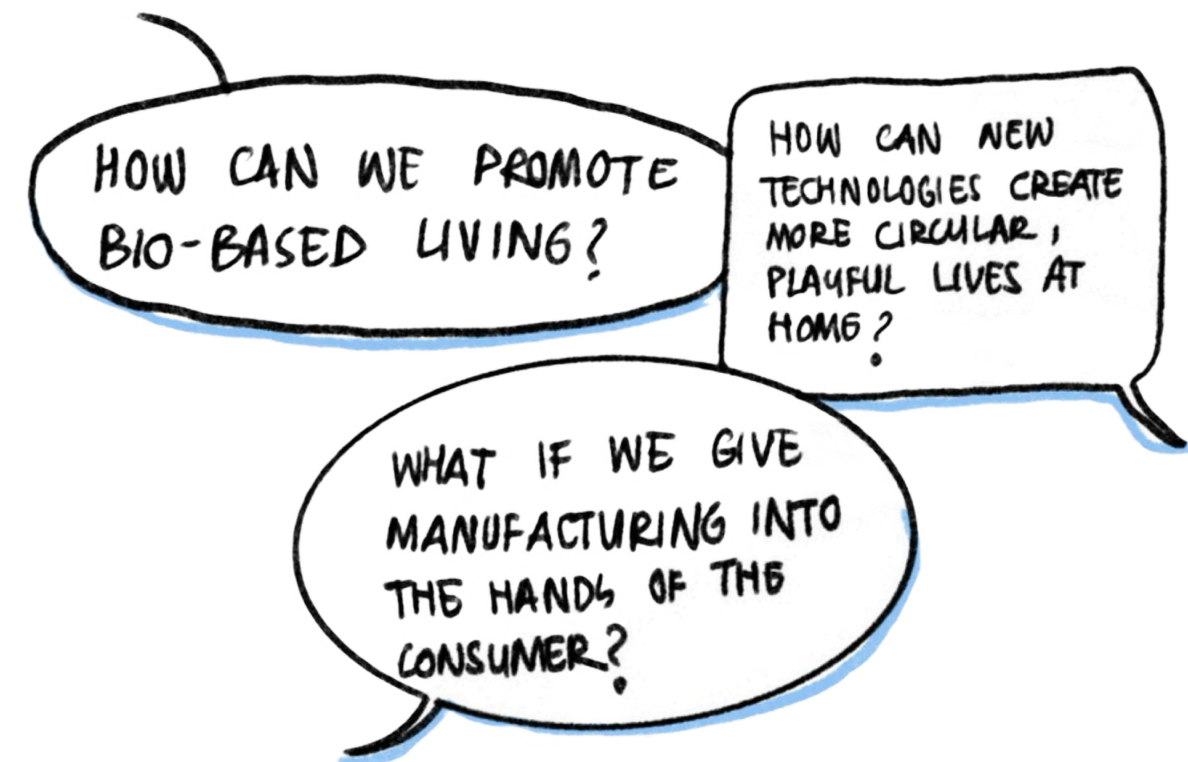
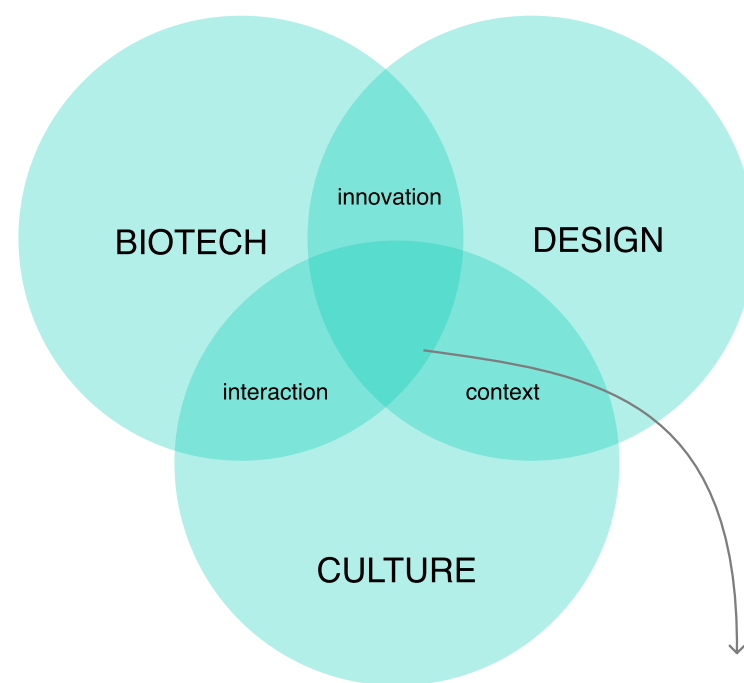


// a still from *Dear Alice*, an advert by Chobani

Ideation

I started brainstorming all the possible permutations and combinations, keeping these inquiries in my mind. Due to the product being purchased from IKEA, I chose to stick with the brands DIY values letting the customer almost make their own furniture.

The aim is to promote integration of living organisms into our lives not merely as tools or materials, but as active participants in a shared ecosystem. It envisions a future where living artefacts can foster new ways of relating to our surroundings, prompting us to reconsider our relationship with the natural world and the role of living matter in our designed environment.



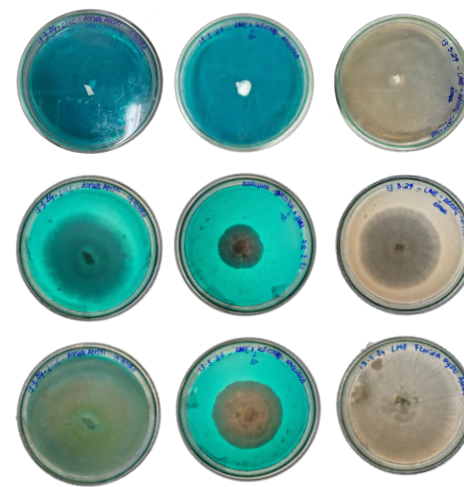
My ideal aim with the positioning of the product was to have it at the intersection of Design, Biotech and Culture, three fields that seem may seldom intersect, but do so more than they might appear to.

I started coming up with list of all products that could potentially be the right fit for integrating living organisms, and decided to stick with home and lifestyle products.

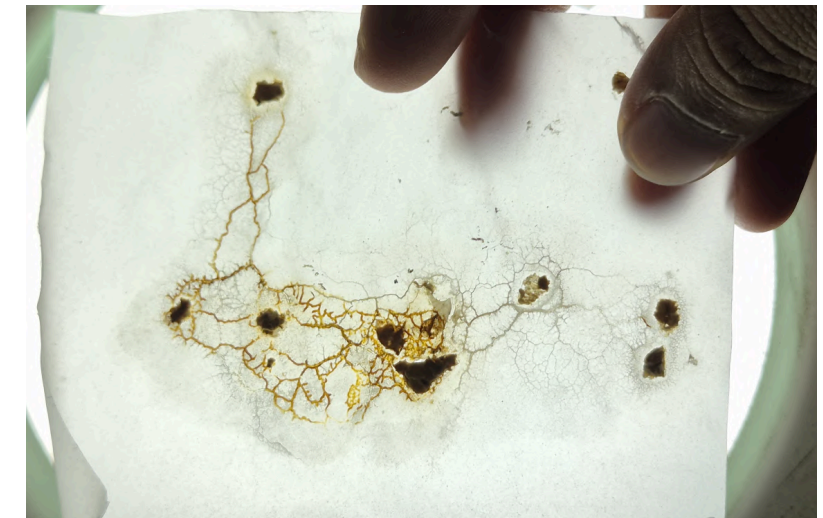
With the product range narrowed , I tried more combinations where eventually I concluded to go ahead with a lighting device. It has the potential to integrate functionality, aesthetics and more subtle themes of semantics and perception within it hence I decided to go ahead with it.



Moss is quite resilient and has been used previously for growing within terrariums, natural air purifiers etc. I tried growing moss on different surfaces that may act as the lamp surface. Following some recipes whilst tweaking them to suit my conditions led me to be able to maintain a good layer of moss on paper, cloth etc. But I wanted to try making it on a material that can be fabricated in interesting shapes and forms while maintaining strength.



Mycelium would be my go to because of it being relevantly more time-tested as compared to other materials. But due to technical issues and time constraints I could not have a good sample ready for the form I was planning to shape it in. One of my tasks on my to do lists is to make this possible and see if it works.



Slime mold is also an interesting but fragile material. Fastest out of the three to grow, but the exploration for me was limited just to orchestrate its movement on a surface. I developed a natural material surface which has food source for the mold already in it so the slime mold grows in those directions. Explorations with this are yet again something I want to pursue further.

✓ Moss CAN:

- Trap airborne dust, fine particulates, and heavy metals.
- Absorb excess moisture, preventing mold growth indoors.
- Support microbial activity that breaks down certain pollutants.
- Function in low-light and low-maintenance environments, unlike many "air-purifying" houseplants.

✗ Moss CANNOT:

- Pull in large volumes of air like a mechanical purifier.
- Act as a carbon sink in the same way that trees do.
- Completely replace air filtration systems in high-pollution zones.

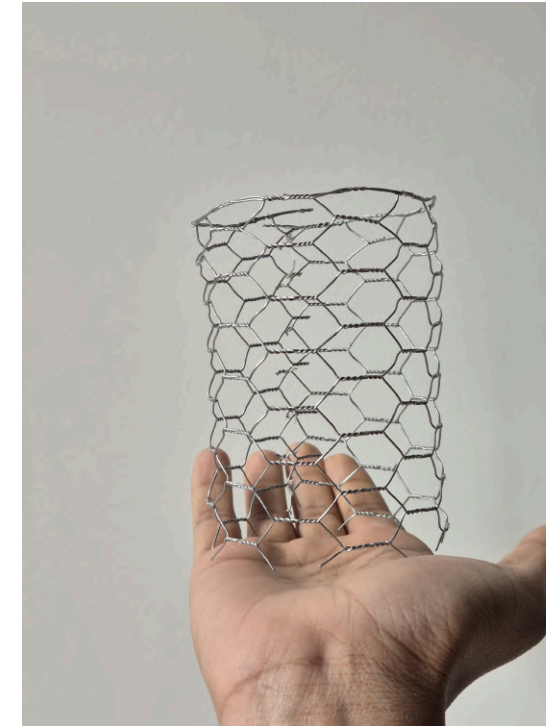
// from Mossify

The pros and cons of moss made it perfect for a smaller, home setting. I chose to move ahead with moss and now I had to think of a material that would provide structure for it to grow.

A conventional approach would be to take materials it best grows on and build scaffolding. So I tried working around aluminium/ steel meshes on which I could maybe wrap a planar material and then grow things but that did not sit well with me. I was on a lookout for a more flexible material, in terms of liberty to shape it and give form whilst maintaining the functionality.

And the form inspirations I was leaning towards were difficult to replicate with these methods.

Hence I decided to consider PLA and 3d printing structure of the moss to grow on. PLA being a bioplastic made it a good contender along with the ability to take more complex shapes and forms made it a choice of material I chose to go forward with for the skeleton of the lamp.



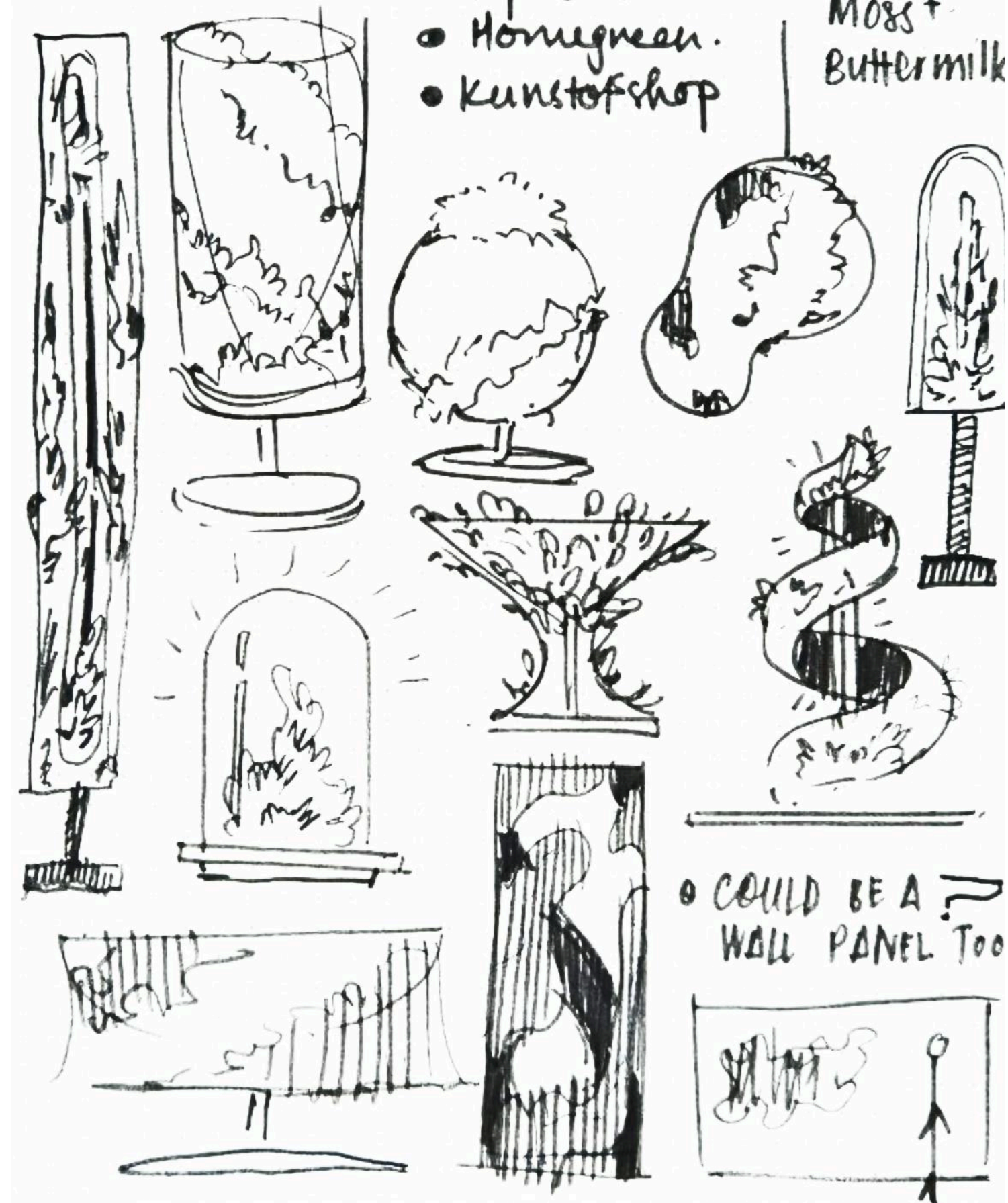
// different structures I was exploring, inspiration for form from stores, Object exhibition in Rotterdam

- PROGRAMMABLE MATERIAL LAB LAMP
- LAMP THAT KEEPS GROWING (G14)
- TRAINING 'WETWARE' TO RECOGNIZE LIGHT & DARK

@ ALGAE DOCUME

- Mycelia.
- Homegreen.
- Kunstofshop

Moss +
Buttermilk



I started sketching the forms and ideating while at the same time trying to develop a bio based glue that may help the moss reinforce itself on the surface and provide the necessary nutrients for it to grow.

The form language I was trying to go for was futuristic but more toned down and grounded, something that will seamlessly fit into an environment but at the same time have its unique identity.

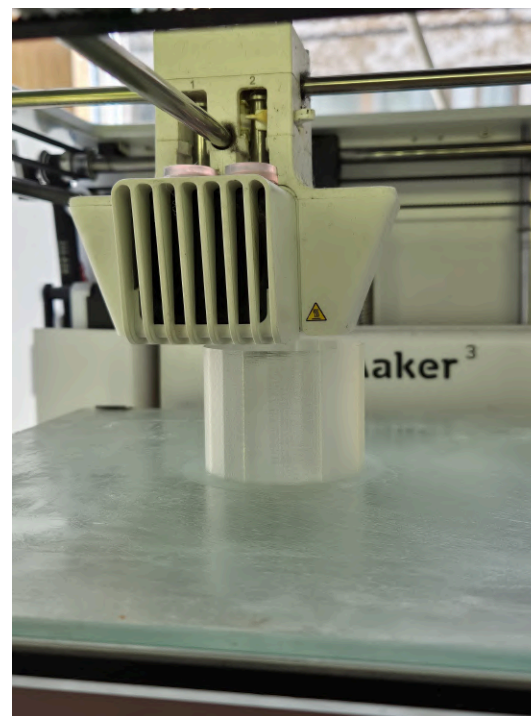
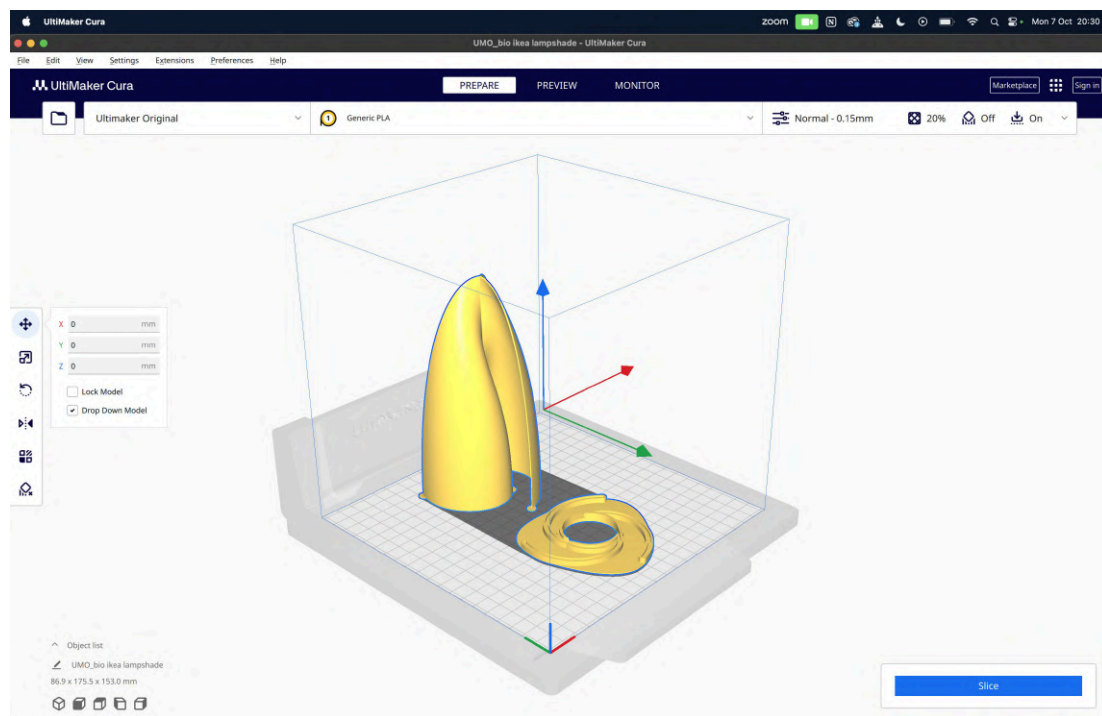
Flowing, blobby forms fascinated me and then I finally decided to go with one of the sketches.

Prototyping

After developing and trying the bio-based glue on different surfaces and having consistent results, I quickly 3d printed a random structure and for the sake of comparison, put on one part of the moss with regular glue and the other with my recipe.

The sides with the normally glued moss turned yellow over a period of time but the side with my glue stayed fresh and was thriving.

I put in a very tiny LED to check the different parameters of the emission of light from the lamp, and it worked out well.



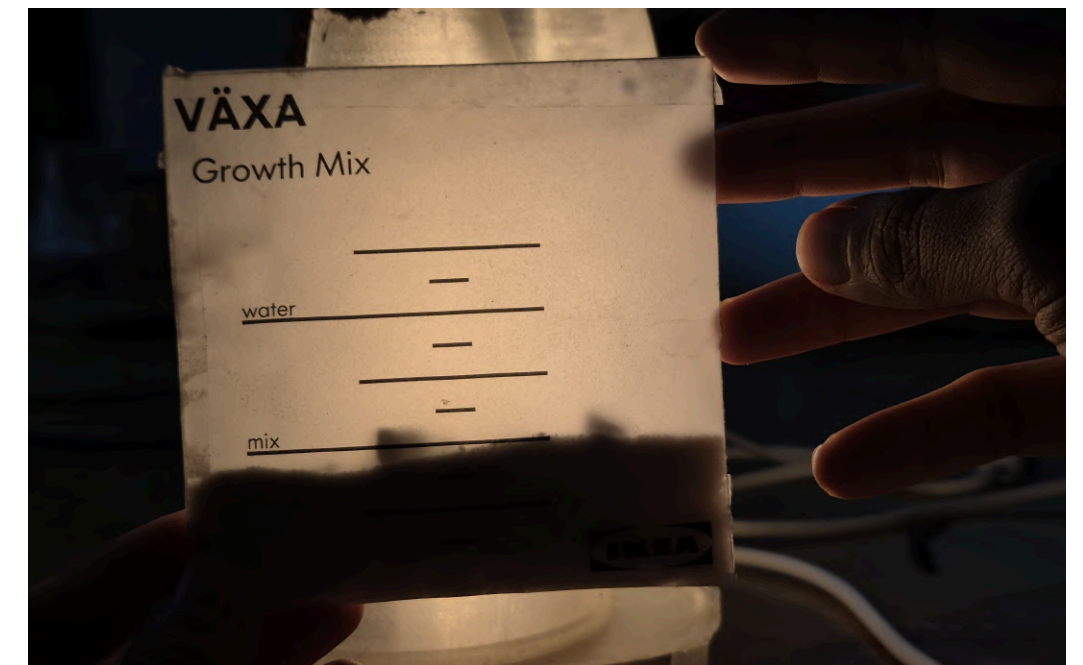
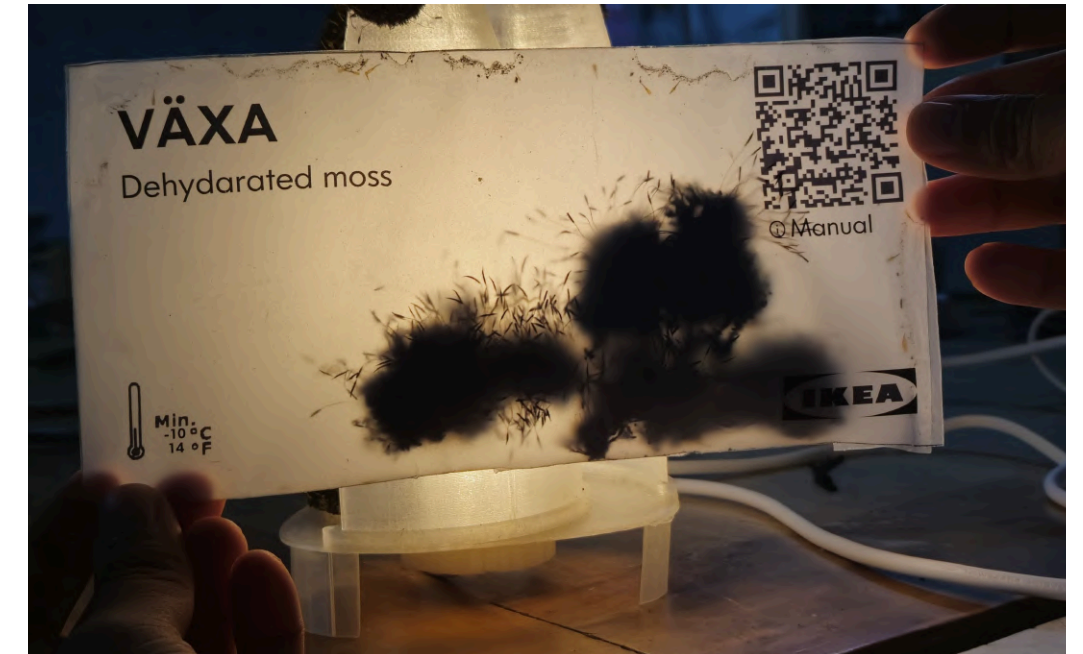
Satisfied with the results I got to printing a larger structure with clear PLA for the main lamp.



I assembled everything and inserted a 2.5 W Filament bulb along with the bulb holder and a cord set internally through the base of the lamp and then attached it to the top



....so now it looks something like this.



Now that the prototype was done, I wanted to fit it within the narrative of DIY culture of the brand, so I conceptualized the product to be distributed in the form of Grow-It-Yourself packs, that come along with instructions for the users. **‘Växa’ in Swedish translates to growth.**

I made an identity following the brand guidelines and imagined how might the packaging be.

I also created a dummy ad and a small advert for better product visualization.

The kit contents are:
The skeleton of the lamp, dehydrated moss, growth mix, spraying container, bulb holder cord set, instructions for care.

The image shows a VAXA lamp, which is a translucent, teardrop-shaped container filled with moss and small plants. It sits on a simple, light-colored base. The lamp is illuminated from within, casting a warm, yellowish glow. The background consists of dark, vertical, pleated curtains. The overall mood is cozy and natural.

Truly making it a
living room

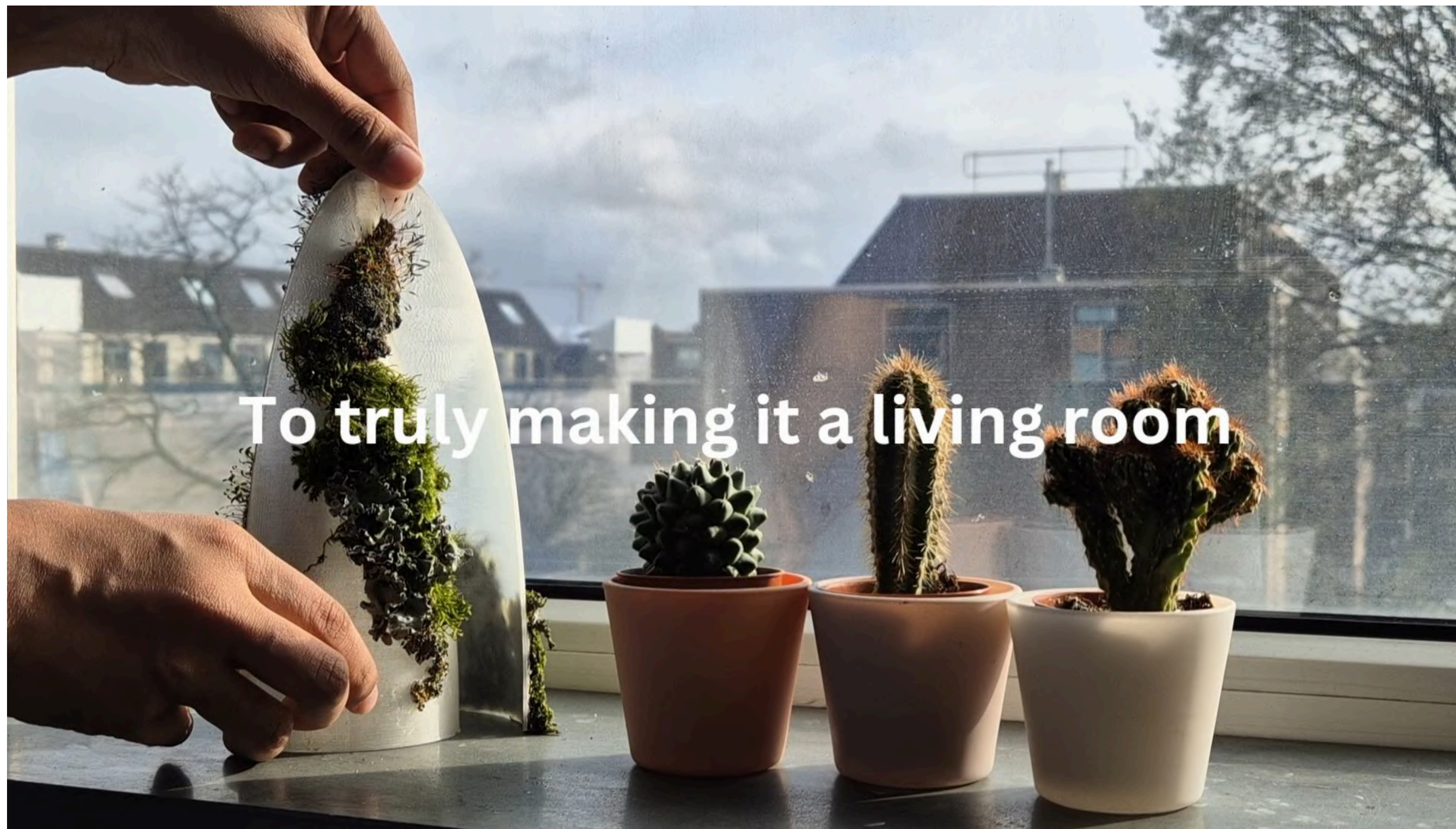
VAXA lamp

4.99

www.ikea.nl/växa



Advertisement for the product



To truly making it a living room

Short advert for the product (<https://www.youtube.com/watch?v=9z84oB089uM>)



Växa is a GIY (Grow-It-Yourself) kit table side lamp, which will be distributed in IKEA in 2050. It comes with bioplastic PLA skeleton, dehydrated moss that rehydrates once watered, a growth mix which is a Bio Based glue which helps it grow onto a surface and the rest of the electric components.

The structure form is very flowy but uniform and complements the growth. My future plans are to experiment with more structures.

The aim is to integrate living organisms into our lives as active participants in a shared ecosystem, moving beyond their use as mere tools or materials. This envisions a future where living artefacts foster new ways of relating to our surroundings, prompting a reconsideration of our relationship with the natural world and the role of living matter in our designed environment.

With this in mind, it leverages the unpredictability in growth patterns as one of the aesthetic choices and appeals, as it differentiates each product from the other, and makes it a standalone piece in itself.

With further development, this along with many other products in this range will be more resilient and consumer ready.



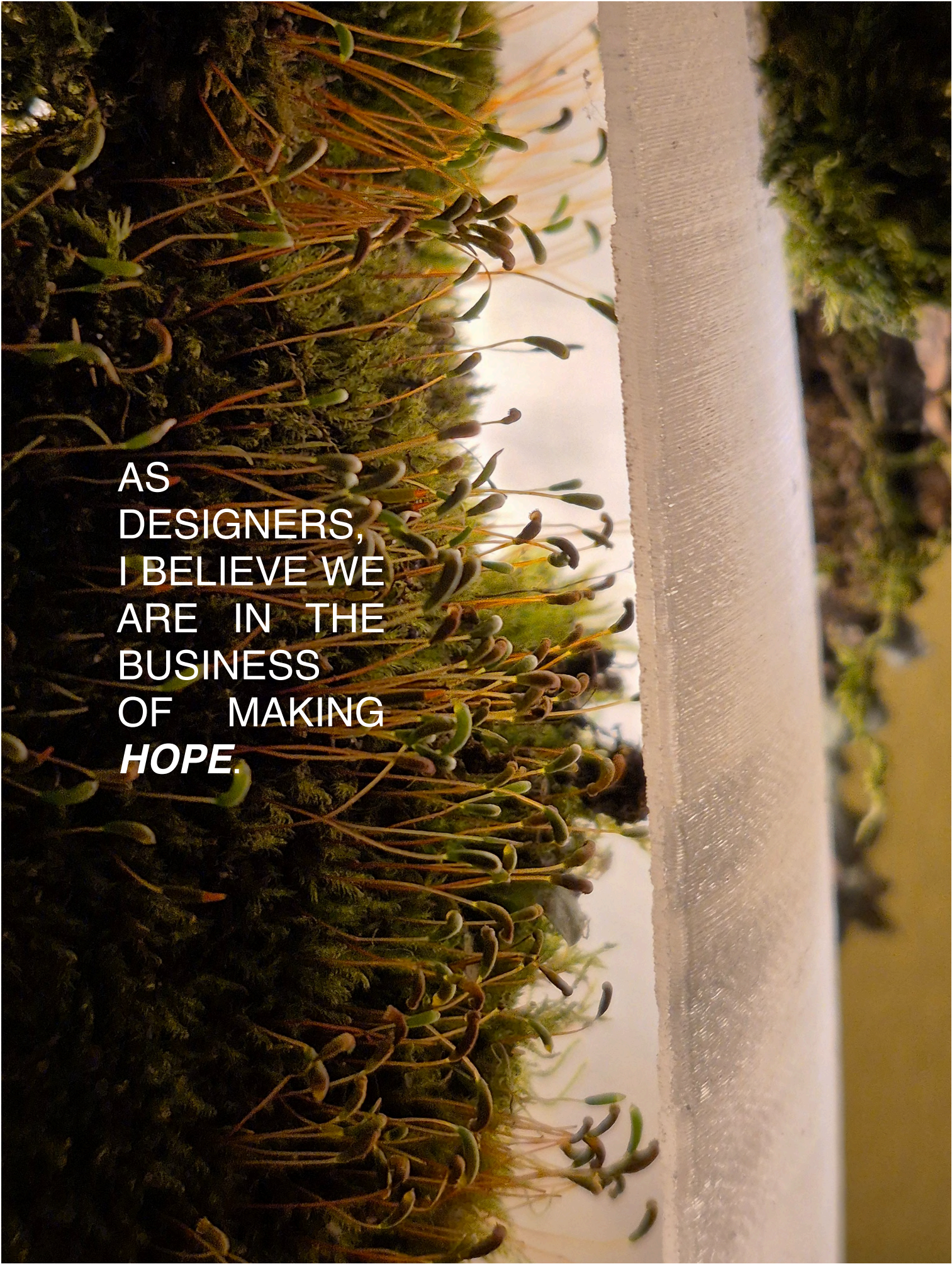


Process and Progress

Future Plans

- Experimenting and prototyping more products in the range
- Further research on the interaction around living objects and understanding semantics of living products and artefacts.
- Developing a range of products with upcoming new materials and techniques and working on manufacturing, scaling, and adoption as per the access to equipment and technology for prototyping
- Expanding the worldbuilding and slowly moving towards enacting the imagined future in tangible ways.
- Enhance the prototypes and make them market ready, preferably before 2050. The sooner the better.



A vertical photograph of a terrarium. The left side is filled with a dense layer of green moss and small, thin-stemmed plants with tiny green leaves. A white vertical bar runs down the right side of the image. The background is a soft, out-of-focus light color.

AS
DESIGNERS,
I BELIEVE WE
ARE IN THE
BUSINESS
OF MAKING
HOPE.

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