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INTRODUCTION

This project corresponds to a universal mobile phone case. A product based on the relationship between humans and technology and specifically designed to be sold by the company Muji.



ABOUT THE TEAM

Wabi Sabi is a Japanese concept and aesthetic that searches for beauty in serenity, simplicity and imperfection.

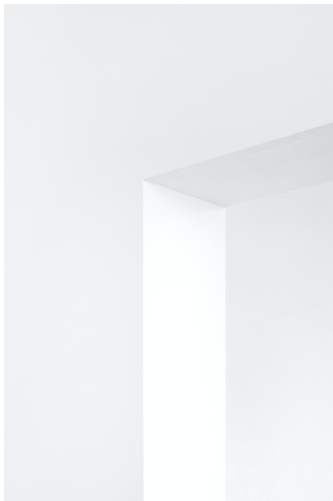
Earlier in the semester, our team was tasked with creating a product for Muji, and it has been quite a ride. In the beginning, it was difficult for us to get to agreements in the process since we were all perfectionists with our own points of view. However, the more we worked together the more we understood our strengths and weaknesses as individuals. This process taught us to support each other as a team and to admire the value of these imperfections.



MUJI

Our client during this semester has been the Japanese company Muji. So before we go deep into our project, it is necessary to understand the foundations of the company from both an aesthetic and ethical perspective. Simplifying this process required focusing on what we believe are the three essential Muji values:

MUJI VALUES







SIMPLICITY

Founded in 1980, Muji emerged in the expanding post-war climate of consumerism. Their critique of luxury goods and extravagance is dictated through the elegant, yet enjoyable simplicity of their products.

Their no-brand strategy appealed to the market tired of consumerism and offered a refreshing alternative to traditional branded products. Functionalism is shown through the long-lasting nature of their products and extreme refining or the 'stripping away any unnecessary parts'.



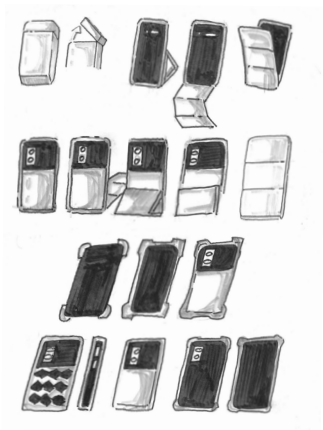
UNIVERSALITY

Muji aims to create necessary products for everyone's needs, encouraging human rationality. It does not follow trends, it creates timeless designs that can fit into any culture or country and always have something useful to offer to all customers. Its manufacturing process is extremely rational, allowing simplicity and emptiness to provide ultimate universality, reaching the feelings and thoughts of all people.



ETHICAL AWARENESS

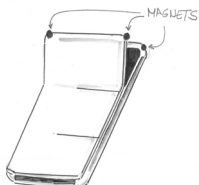
Muji produces socially and environmentally friendly products with an emphasis on minimising waste, recycling and reusing. They use minimalist packaging and design with low ecological impact, and a standardised supply-chain management system and store-layout plan with a minimalist approach. They don't produce more than what they can sell. Their policy puts emphasis on fighting planned obsolescence by selling long-lasting, recyclable or reusable products.



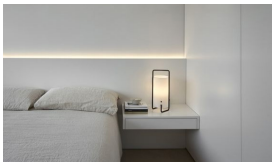
THE PROBLEMS

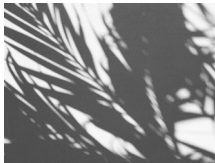
The brief asked us to design a product that addressed a problem related to technology. Since mobile phones entered our lives they have provided great benefits but also negative effects as well. Many people are addicted to their mobile phones, causing constant distraction, the loss of concentration capacity and a reduction in their in-person social interactions. The phrase "to disconnect with technology, to connect with yourself" summarises our inspiration for the project.

Our first idea consisted of creating a box with a locking system that would prevent the user from checking their phone while doing other activities, but this would only be practical at home or similar spaces due to its bulkiness. Our group wanted to create a product that you can carry everywhere with your phone in order to nullify sensory experiences that could be distracting. After some basic prototyping, we reduced our goals to visual distractions. Phone cases are an accessory that offers protection to these devices, so we thought this may be the ideal product to implement this function by adding a screen cover.



Almost immediately, it became clear that it did not make sense for our client to have a different phone case model for each new device, since their policy is based on human rationality. The wide variety of brands and styles of mobile phones that exist lead to an overcrowding of phone-related products with planned obsolescence. Therefore, this project aims to help resolve these concerns by offering an unobtrusive case that enables the user to focus easily, whilst also fitting every mobile phone, reducing waste and seeking universality.





3-5h
47,3%



More than 5h
42%

1-2h
10,7%

How many hours a day are you on the phone?

PHONE USAGE RESEARCH

In order to validate our concerns on screen addiction we carried out a survey where 131 people of various ages participated. Some of the most shocking data results we got is that only 10% had screen hours between 1 to 2 hours daily, the maximum amount of time that is considered healthy. While almost 48% spend more than 5 hours on their phone.

Our research showed that the main causes for this addiction are visual stimuli and the anxiety to check social media. 53% of people think their time of phone-usage would decrease if they did not see their phone's screen. Even though mobile phone cases that cover the screen are not popular among people under 30 years, in general they have good acceptance.

In addition, protection is the most valuable feature, and aesthetics and comfort come after with equal importance. And lastly we explicitly asked this question: Would you buy a phone case that also covers your screen? And almost 50% said yes.



UNIVERSAL CASE RESEARCH

To create a universal phone case, analysing different phones first was essential, but it was impossible to break down all of the models that exist so we chose the most common 36 models. With measurements of the smallest and largest height, width and thickness of these devices, it was concluded that the phone case needed to stretch at least 4 cm to fit all phone sizes.

This also gave us the measurements required to ensure all the different-sized cameras could function. Regarding the variety of positions of buttons and ports on different models, we excavated a space on the edges of the case to enable easy access to these features.





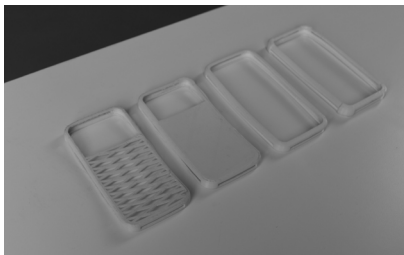


MATERIAL RESEARCH

The cardboard prototyping phase gave our team a visual idea of what our case would look like and the materials to use.

Our first idea was to use four 3D-printed hard corner pieces and then overlapping them with a swimming cap. This proved unnecessary as forming the case to any particular shape would have been near impossible.

Silicone was the most promising material from our research but would have proved difficult to work with without an industrial pressure mould due to its density. Therefore, we focused on researching elastic 3D-printing filament and found out that Filaflex 60A was the best option.



CREATION PROCESS

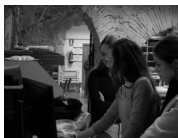
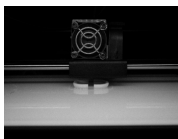
Prototype 1. Pattern and Edges

We researched patterns used to add elasticity in hard materials like wood, choosing one with a rhombus-based pattern. This was our first functional prototype. It worked on small and medium-sized phones. The pattern worked relatively well but it was not aesthetically simple, one of the three fundamental values associated with our client. Our next step was trying a completely solid back of the case.

Prototype 2. Solid and Edges

We noticed that this prototype wouldn't be as elastic as the last one. The solid inside linked to the edges was stopping the case from stretching. It was simpler and more coherent, but it only worked for small cell phones.

Dieter Rams' concept of 'Good design is as little design as possible' led us to eliminate the back section, leaving the edges only.



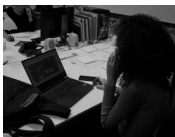
CREATION PROCESS

Prototype 3. Only Edges

This prototype was a crucial step for us. It was even more elastic than the first one. It looked simpler, cleaner and more elegant. We discovered that the printing process temperature was a key factor in the elasticity of our product. We tested the reaction of the filament in the printing process at different 10 °C increments and the one printed at the lowest temperature, 210 °C, was the most elastic of our prototypes, fitting the largest phones available for trial. Our next focus was security.

Prototype 4. Only Edges, More Secure (210 °C)

Adding another 1mm over the front and back corners of the case achieved a coherent product that protected the screen and camera from scratching when in contact with surfaces. If the phone hit a surface it would bounce, muffling the impact because of the elastic material used. This design was elegant, sleek and functional.



CREATION PROCESS

Screen Cover

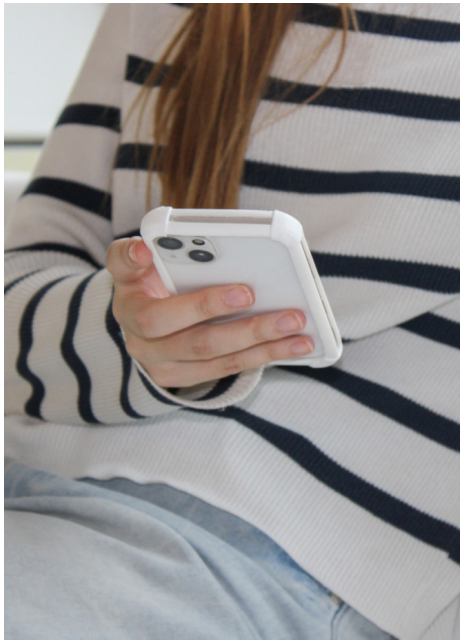
Taking into account the simplicity and coherence our brief was demanding, the front cover had to be made of the same material as the rest of the prototype. At the same time, it also needed to be a solid surface that covered the screen fully and was able to stretch into the shape of all cell phones.

We printed a flat sheet of 1mm thickness at 3 different temperatures to study the elasticity of each of them. The one printed at 210°C was more elastic but extremely fragile, while the 220°C cover was the cleanest and most well-printed but was not elastic enough to achieve the measures required for the universal case. It would only work with small phones. The 230°C cover was somewhere in the middle of the previous two but was still too fragile to be used on a daily basis.





THE FINAL CASE





DESCRIPTION

Accomplishing our goal to design a universal phone case that balances functionality and aesthetics at the same time as incorporating MUJI's core values was of great significance to us. Our final product seeks to address simplicity through its lightweight shape, neutral colour and texture which makes it visually unobtrusive.

Universality was the greatest challenge for our team, and our prototype being able to stretch in both the horizontal and vertical directions without interfering with cameras, notches, and ports was a testing but ultimately fulfilling task. Our target client is almost anyone that owns a common smartphone, but also people who consider themselves aligned with MUJI's values.

This phone case also serves to bring ethical awareness to the users that discard their phone case every time they get a new device while supporting a market that generates value because of planned obsolescence. Our proposal is reusable and long-lasting.







PLANS FOR THE FUTURE

3D-printing technology is optimal for prototyping, but not for mass production. We chose this elastic filament because its functional qualities are similar to those of silicone.

With access to the variety of technology available to a company like MUJI - such as compression moulding machines for silicone - WABI SABI hopes to take this case even further. If made out of silicone, our prototype would have an even bigger stretching capacity, fitting a wider range of mobile phones and being easier to place on the device. It would be cleaner, more elegant, and longer-lasting.

Our next step is to tackle the problem of visual stimuli which was highlighted as a key issue during our research. With access to the silicone and advanced magnet technology, a front cover that adjusts to fit any phone in unison with the back of the case, similar to the original three-fold iPad case, would be our next goal.

Finally, the idea of universality in products dedicated to technology protection could be expanded to many other products such as tablets and laptops, resulting in a range of universal, long-lasting protective cases.

MAKE IT MUJI

