

Bachelor Thesis
Noora Karila
Metropolia University of applied sciences
Degree in Design
Specialisation in Industrial Design
Spring 2019

Design **FOR DRIP COFFEE MAKER**

- 4th wave coffee movement

ABSTRACT

My Thesis is a concept of a drip coffee maker for the pioneers of a coffee industry Lari Salomaa and Johan Damgaard. who also perform as my client for the project.

The goal was to design a filter coffee maker concept. Directives for the design were a new wave of coffee culture, sustainable development, and responsibility, not forgetting understandable and timeless design. As a background for my design process, I used the themes and insights that I had made in making the first concept in spring 2018. Also, discussions with Lari and Johan about the design and function are relevant in my design process. I also try to take into account the new needs and possibilities of making coffee.

The purpose of my work is to design a product that could possibly be implemented, the idea that created a little pressure at the planning stage. In my thesis, the coffee maker will be seen at the conceptual level and the product may be further processed in the future together with the client.

The methods used in the thesis are based as much on the analysis and background work that examines the requirements of good coffee production and the design itself. I worked on the idea for a long time by drawing and at the end finalizing the model by 3D modeling. The prototyping and testing of the product were not on the focus in my final thesis. But working on them will continue from now on, towards a more concrete model.

Author: Noora Karila
Title: Drip Coffee Maker
Number of pages: 72
Degree: Bachelor of Culture and Arts
Degree programme: Design
Specialisation: Industrial Design
Structors: Tuomo Äijälä,
Ville-Matti Vilkka

TIIVISTELMÄ

Opinnäytetyönäni suunnittelin suodatinkahvinkeitin konseptin kahvi-alan pioneereille Lari Salomaalle ja Johan Damgaardille jotka toimivat myös opinnäytetyöni toimeksiantajina.

Tavoitteenani oli suunnitella suodatinkahvinkeitin konsepti jonka designille suuntaa antavina teemoina toimisivat kahvikulttuurin uusi aalto, kestävä kehitys ja vastuullisuus sekä ymmärrettävä ja ajaton muotoilu. Taustana suunnittelulleni toimi osittain ensimmäinen ehdotus kahvinkeittimestä sekä Larin ja Johanin kanssa käytyt keskustelut keittimen designista ja käytettävyydestä. Pyrin myös ottamaan huomioon uudenlaiset tarpeet ja mahdollisuudet kahvin keittämisessä.

Työni tarkoitus on suunnitella tuote joka voitaisiin mahdollisesti toteuttaa, ajatus joka loi hieman paineita suunnitteluvaiheessa. Opinnäytetyössäni tullaan näkemään kahvinkeitin konseptitasolla ja tuotetta työstetään mahdollisesti pidemmälle tulevaisuudessa yhdessä toimeksiantajan kanssa.

Työssäni käytetyt metodit pohjautuvat yhtä paljon analyysiin ja taustatyöhön, joka tutkii hyvän kahvin valmistukseen perustuvia vaatimuksia, sekä itse suunnittelutyöhön. Työstin ideaa pitkään piirtämällä ja loppuvaiheessa mallintamalla. Tuotteen prototyyppi ja testaaminen jäi lopputyössäni vähemmälle. Mutta näiden työstäminen jatkuu normaalisti tästä eteenpäin, kohti konkreettisempaa mallia.

Tekijä: Noora Karila
Otsikko: Drip Coffee maker
Sivumäärä: 72
Tutkinto: Muotoilija (AMK)
Koulutusohjelma: Muotoilun koulutusohjelma
Suuntautuminen: Teollinen muotoilu
Ohjaajat: Tuomo Äijälä,
Ville-Matti Vilkka

CONTENT

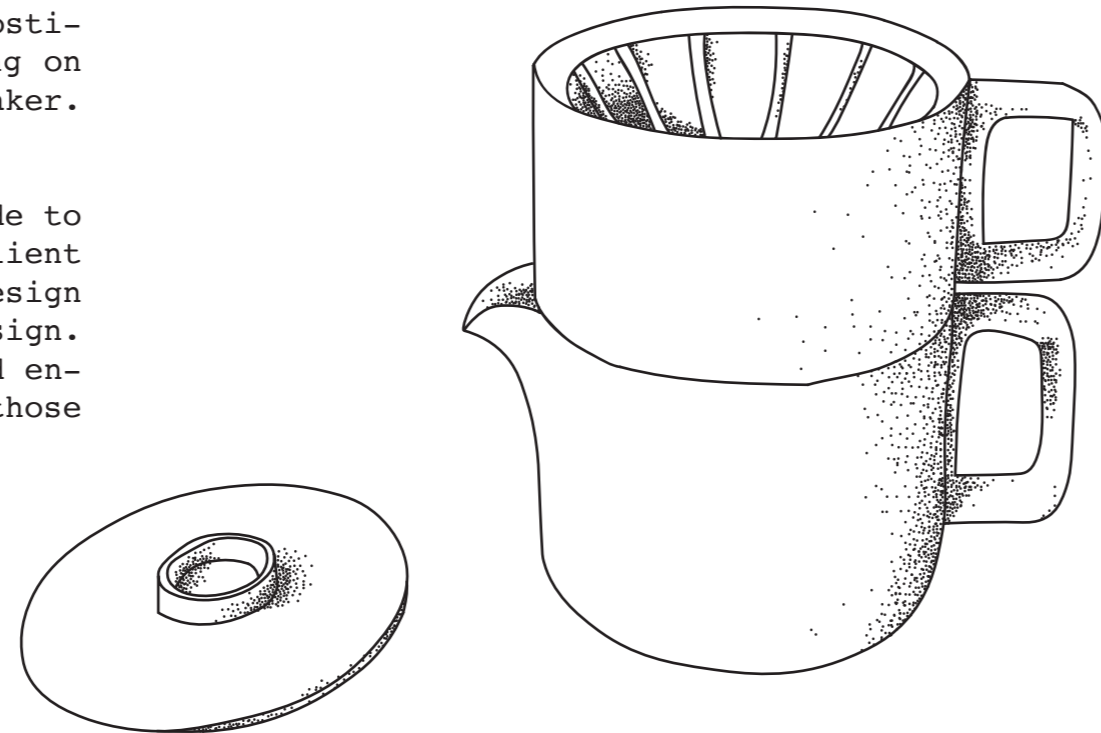
INTRODUCTION	32	Analysis of the drip coffee maker	
	33	Analysis of the server	
6	Topic and goal	34	Analysis of the handle
7	The subject definition and the question marks on the study	35	Analysis of the dripper
8-9	Methods	36-37	Design drivers
BACKGROUND			
11	Client	39	Product analysis as part of the design process
12	Meeting with Lari and Johan	40-41	Product analysis
13	Moodboard	42-46	Sketching/ creative process
14	Coffee movement in waves	47	Summary of the design process
15-16	Responsibility and climate change	48-49	User profiles / 3 concepts
18-21	Original drip coffee maker concept/ spring 2018	50-51	Theme 1
20	Material and colour moodboard	52-53	Theme 2
		54-55	Theme 3
THEORETICAL FRAME OF REFERENCE			
22-24	Frame of reference	56-57	Final concepts
25-26	The user and user situation	58-60	3D visuals
27	Extraction, preparation and balance	61	Moodboard
28	Requirements of the product	62	Materials
29	Manufacturability and materials	63	Layout of the techniques
BENCHMARK ANALYSIS			
31	Benchmark for Drip coffee maker and analysis of the structure	64-66	Dimensions
		67	User interface
		68	Application user interface
		69	In the location
		70	Conclusion
		71	Further development
		72	References

Topic and goal

My thesis is a concept for a Drip coffee maker for Lari Salomaa and Johan Damgaard. Lari Salomaa is managing director at Johan and Nyström, and also he is one of the authors of "Coffee revolution" book. Johan Damgaard is former Co-founder and CEO of Johan & Nyström currently working as a captain for Kråkberget. They both share the same passion for coffee and sustainable products and brands.

My role is to design a drip coffee maker as a substitute for the existing ones. I will be focusing on the structure and design of the Drip coffee maker. Also, I will be in charge of the final design.

The design of the Drip coffee maker will be made to support the ideas and expectations of the client and users. I will bring my know-how from design perspectives and artistic view to the final design. Drip coffee maker will be made to the household environment and the design will be in line with those needs.



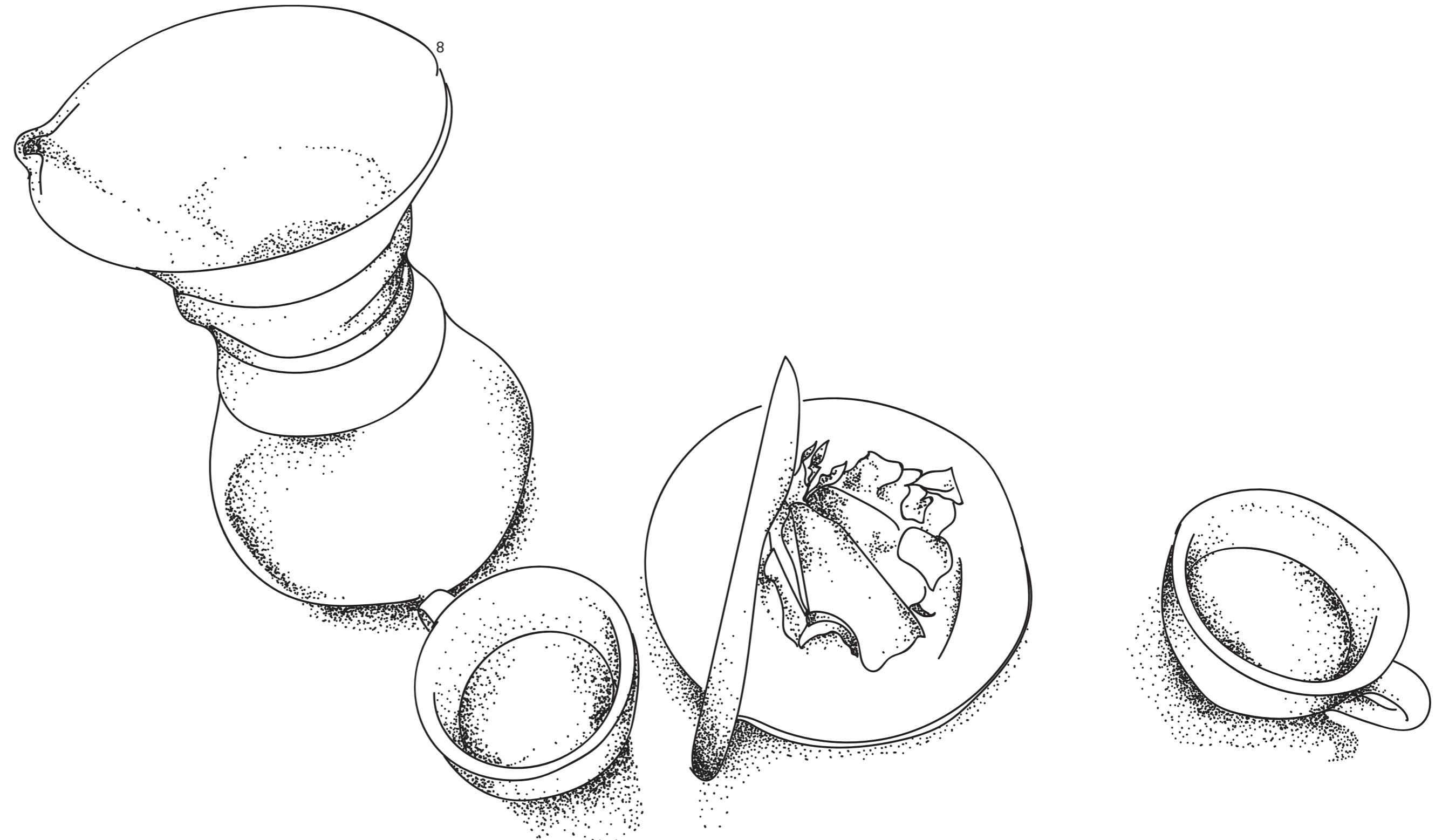
The subject definition and the question marks on the study

Designing a Drip coffee maker raises many questions about the need, function, and use. One big topic is how to make it relevant to today's coffee users. In 2017, coffee was highly consumed in Finland. According to the Coffee and Roasting Association, coffee consumed more than nine kilos per year per Finn (Kahvi- ja paahtimoyhdistys, 2018) In 2018 came out "Coffee Revolution" book by Lari Salomaa and Petri Leppänen where they write about coffees whereabouts and future. I refer to the book more at "Responsibilities and Climate change" chapter.

I will contemplate and study the reasons for a more ethical and less consuming Drip coffee maker. What are the needs and the opportunities for improvement in Drip coffee maker and to bear in mind the "why" before the "how". Also what qualities are relevant to the shape and how responsibility and ethics of sustainable design can be seen in the product.

Methods

For the research method I will be focusing on revolutionary Drip coffee makers Ratio and Moccamaster design for background research, also I will develop the themes and insights that I had made in the making the first concept in spring 2018. I will analyze usage, geometry, and design from a few different and best-ranked servers and drippers and I will shortly research and study functions and mechanical parts of coffee maker. My analyze will be based on reviews from different sources and my own experience of the product.



Client

The opportunity to design Drip coffee maker came from Lari Salomaa who has been working in the coffee industry in various companies for almost 20 years. Currently, Lari Salomaa works for Johan & Nyström as a managing director which one of the founders and captain in 2004 was originally Johan Damgaard.

"Johan & Nyström is a coffee family with a story and they believe that coffee which tastes good can also be organic and ethically sustainable. They purchase all the coffee by Direct trade-model that reduces all traceability and quality-reducing phases. Direct Trade-model is based on longtime collaboration with coffee farmers and producers." Johan & Nyström

We are not making Drip coffee maker for Johan & Nyström but the brand is one of the biggest artisan coffee companies in northern Europe and has definitely an effect in the current coffee scene.



LARI SALOMAA



JOHAN DAMGAARD

Meeting with Lari and Johan

In late spring 2018, I met with Lari Salomaa to discuss the project. We met at the Johan & Nyström Coffee shop at Katajannokka and we talked about his ideas, values, and motives for the Drip coffee maker. I had prepared a few documents, sketches, and composed ideas.

I felt that we share the same values and ideology about the ethical and design related topics which makes it's easier for me to continue my design. For the design and materials, we talked about the possibility of using new materials such as wood or combining different textures.

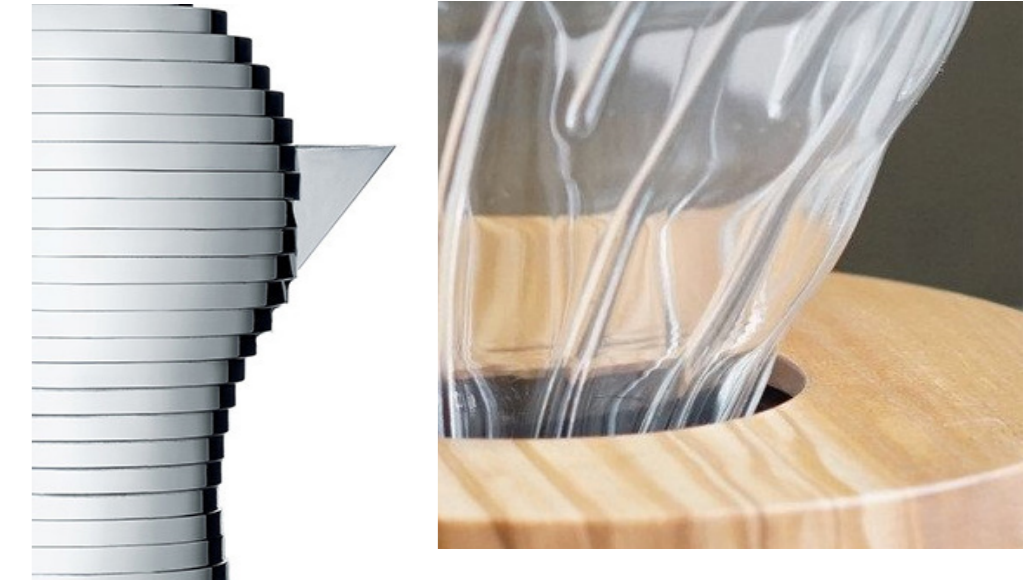
The style for the Drip coffee maker from Lari's point of view is classic, minimalistic and very simple to use. I continued to bring forth the ideas baring in mind Lari's wishes and notes.

Second meeting with Lari Salomaa and Johan Damgaard was at the end of the summer in 2018 when Johan was visiting Lari at Finland. For this meeting, I had continued my design and composed new ideas. We met at Paulig's corner in Helsinki city center.

Johan had strong opinions and idea that we should design something very different and even "wild". Something we could present proudly even at the modern art museum. This changed the direction of my design work. Johan ideas were quite the opposite of what we had discussed before with Lari Salomaa. After the meeting, we all agreed that the Design should be bolder.

Moodboard

Moodboard is based on our conversations with Lari and Johan. From classic Scandinavian design to a more contemporary design of Alessi.

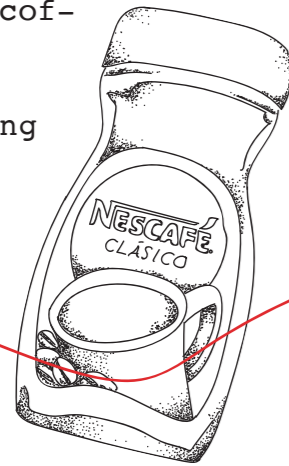


History of Coffee movement

1st WAVE Of COFFEE MOVEMENT

1980's -

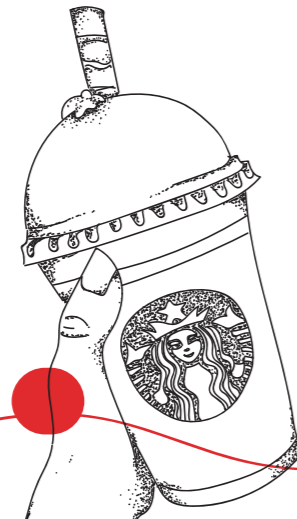
- Mass produced coffee
- Instant coffee
- Vacuum packaging



2nd WAVE OF COFFEE MOVEMENT

2000 -

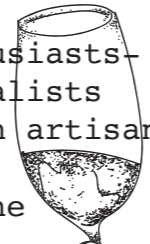
- Coffees origin
- Unique roasting
- Wine industry as an influence
- Coffee experiment
- Starbucks / coffee shops



3rd WAVE OF COFFEE MOVEMENT

2010 -

- Coffee enthusiasts - modern idealists
- Coffee as an artisan food
- Strong niche



ARTISAN FOOD

4th WAVE OF COFFEE MOVEMENT

- 2019 -

- Transparency
- Education
- Farmers
- Climate change



Responsibility and climate change

To understand better the future and responsibility that the coffee industry has I read the book "Coffee Revolution" by Lari Salomaa and Petri Seppänen. In this book, Lari and Petri visited coffee farmers in Brazil to see and hear how they felt about organic coffee and climate change. In this chapter, I will briefly go through all the things that affect coffee culture and relevant according to the coffee industry.

The main message in the book is that people should drink less and better coffee, so much coffee is already bulled down the drains. This would be the ideal goal from the point of view of farmers because the bulk coffee industry is dominating the markets and keeping the prices low. (Coffee Revolution 2018)

In Europe and in Finland people consume many liters of coffee per household. In Finland, the last number was 10 liters/person in a year. (Coffee Revolution 2018) The low prices and full stacked store shelves maintain the high numbers in coffee consumption. Sadly, according to the book in the page ?, all the money usually goes to big corporations such as Nestle.

Lari and Petri write in their book that excessive coffee consumption requires larger plantations and fast growth rate. the amount is implemented at the expense of quality. Ripening times are reduced and the soil is fertilized with chemicals for a bigger harvest. This is not only affecting the coffee plants, the surrounding soil and vegetation also suffer from power production. (Coffee Revolution, 2018)

One of the major factors is also increased coffee consumption in tea drinking countries writes Leppänen and Salomaa (p.12). This means even more coffee is being produced and it knows problems for some coffee qualities. In the book (p.222) Salomaa and Leppänen says that Arabica coffee is said to come to its end in 2080. Is this the result of our drinking and consuming habits?

According to the book, the focus should be on the younger generation since the older people are so used to drink bulk coffee that there is quite nothing we can do about them, so let's not. (Coffee Revolution, 2018, p.150)

Salomaa and Leppänen write in the book that the popularity with the artisan coffee is making its way through the markets. And small independent coffee shops with quality coffee are popping up in every fashionable street corner. Where a cup of coffee costs 4€ in exchange for 1€. I see this as a good thing. The awareness of quality is raised and the product seems more like a luxury product.

After reading the book I felt that designing a coffee maker has a little sense since we should reduce our coffee drinking habits. But also that the reality is that people will continue drinking coffee.

So maybe the coffee maker should make you see the coffee more as a luxury product and it should represent artisan quality. It should make you want to invest in good coffee instead of bulk. I think it should require some of your time to actually cook the coffee to appreciate the value.



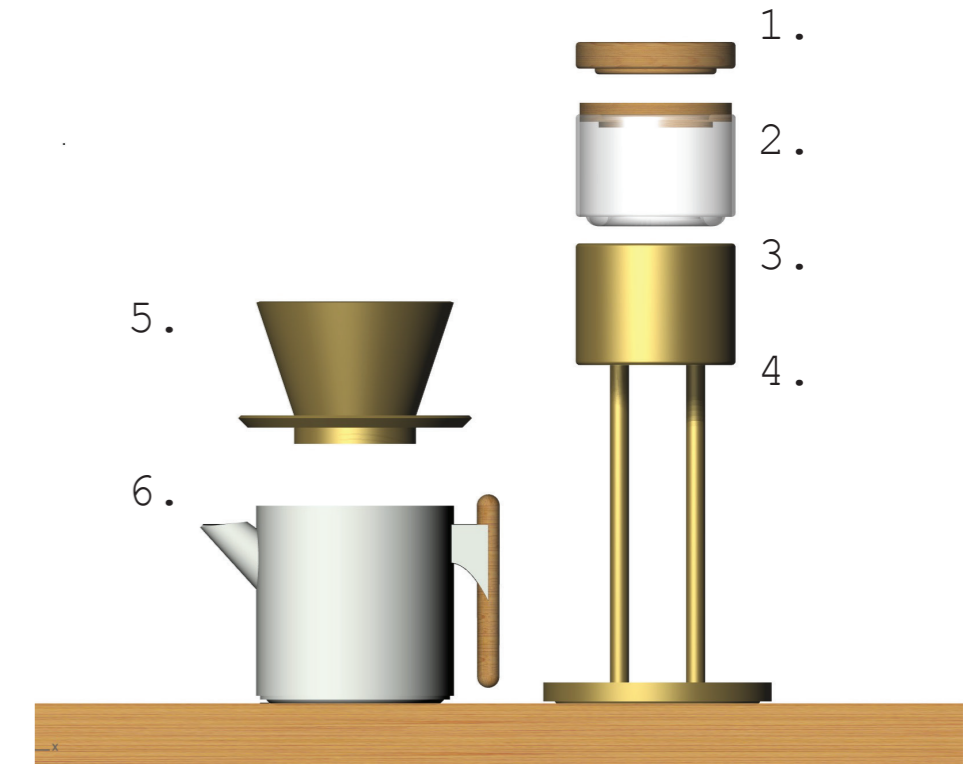
ORIGINAL CONCEPT



The first drip coffee maker concept / spring 2018

The drip coffee maker project started in spring 2018 when I made the first concepts for Drip coffee maker (on the right). My first idea was to have a detachable water tank because that way you wouldn't have to use the coffee server or some other kettle for filling the water tank. When the coffee server is used for pouring the water in the tank the oils from the coffee mix with the water and pass through the filter causing a bitter taste. I also wanted to re-arrange the components in the coffee maker. Instead of having the water tank in the side I placed it on top of the coffee maker. This way the coffee maker wouldn't take so much space in width direction.

In this concept, the dripper and kettle would be separate from the coffee maker. In this way, the coffee maker can also be used for boiling water. Adding more functions to the product enables to reduce the range of electronic equipment at home.

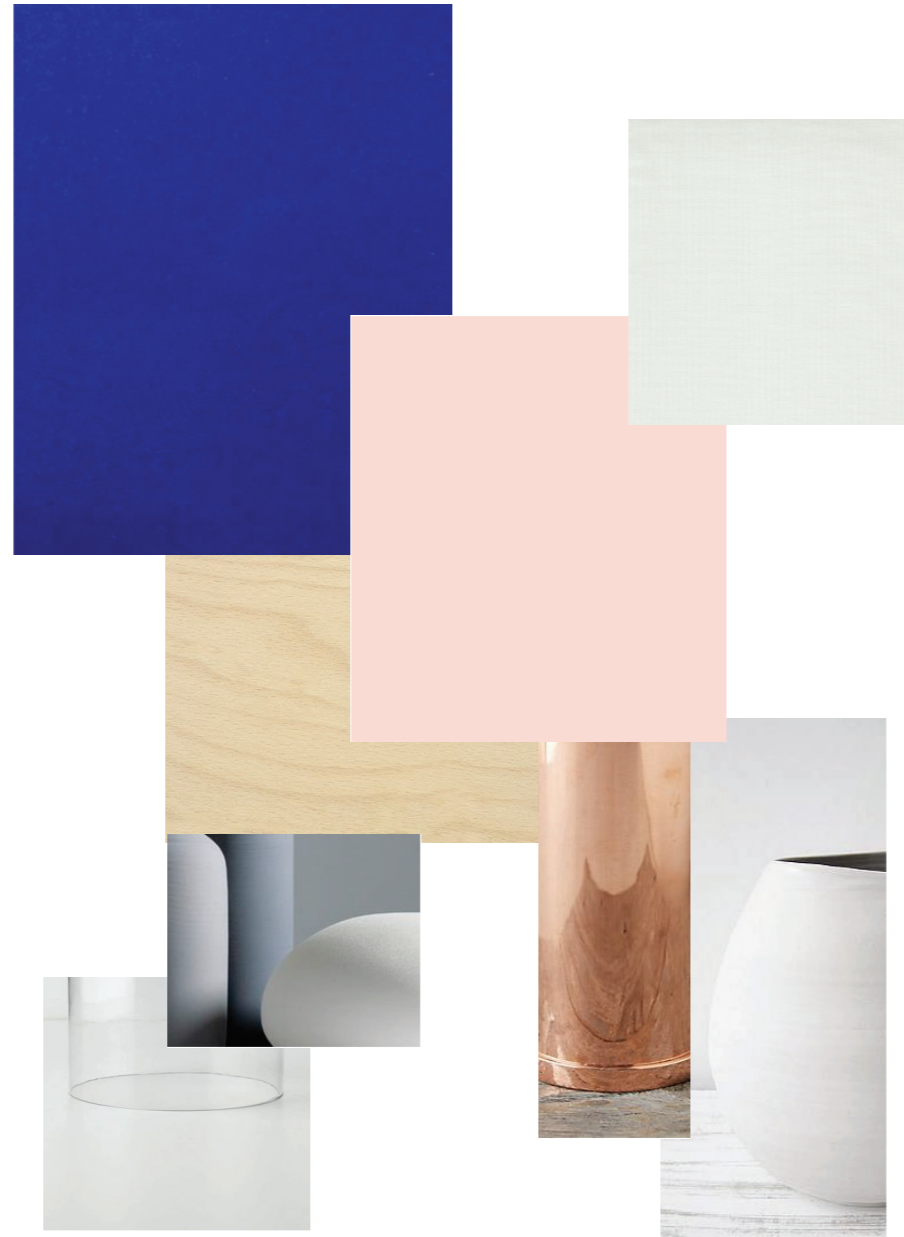


1. Lid
2. Watertank (removable)
3. Water heating and water drop
4. Stand
5. Dripper
6. Server

Material and colour moodboard

The material choices define a lot of how we see and experience the product. I designed the materials to feel and look high quality and ageless. As inspiration, I had Nordic colors and textures from nature such as; ice, snow, sand and dark blue night sky. Artificial colors make materials look cheaper and restless so I wanted to maintain colors and textures that could evoke feelings and mental images from nature. The textures and colors manifest serenity and calming down.

The final concept managed to meet the criteria I had set. But for the client, it wasn't what they were looking for. So I continued sketching and brainstorming new designs.



picture 03 Drip coffee maker moodboard



Theoretical frame of reference

My theoretical framework will consist of all the essential and relevant areas that are important in my work. The user and user situation, balance in coffee making process, material requirements and sustainability.

Materials
Configurations

Requirements of the product



Drip coffee maker
Design process

understandability
Meet your needs

User and user situation

Ethics
Sustainability and
responsibility

User and user situation

“Pouring the coffee, enjoyment and preparation”

“it is a moment of relaxation”

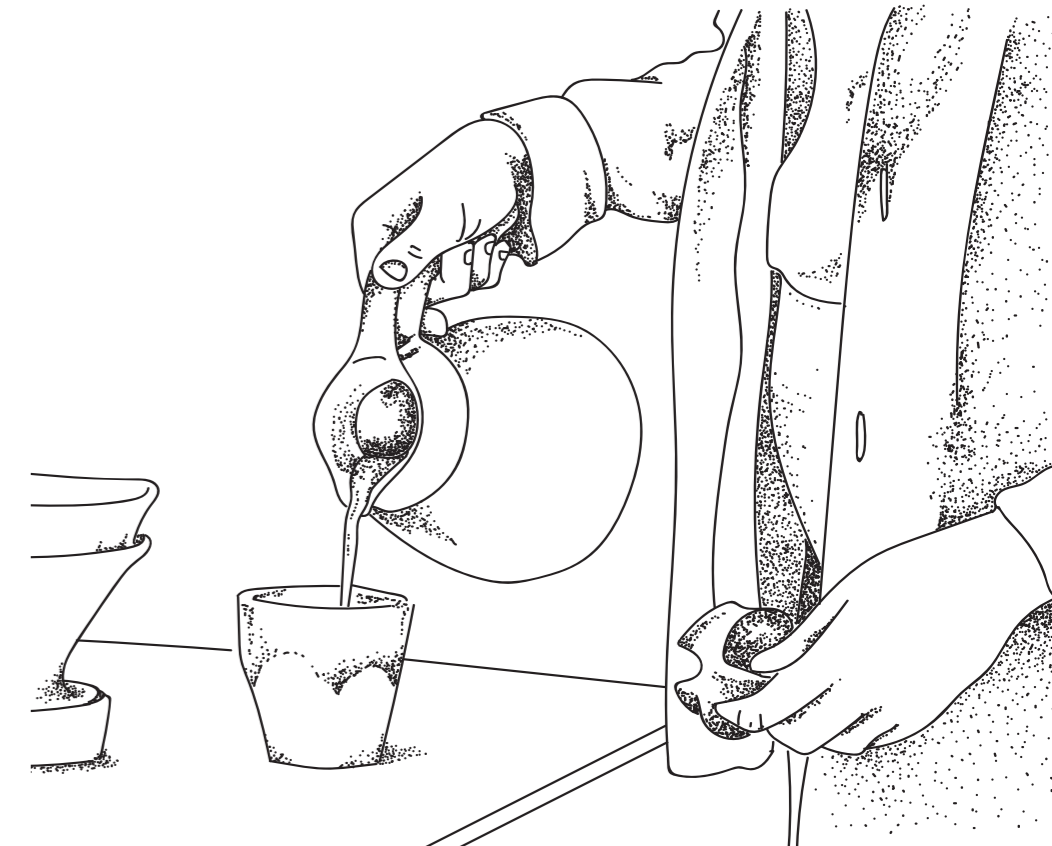
“Social situation, being for others”

(Tarasti, 2013)

Drinking coffee is very social way. It brings people together in domestic and in working environments. It is definitely a habit. Habits are usually considered as something we do because we have always done. Could there be new kinda approach for making coffee?

The objective of the coffee maker would be to inspire the user with coffee making process and not to make it seem too difficult. The design and measurements of the object should be suitable for any user. The server should be comfortable on the hand and the parts that need to be washed and handled should be easily removed and detachable. Materials that are easy to keep clean and doesn't break easily are part of good user experience.

The kitchen is usually the heart of the house and coffee makers are displayed on the kitchen counters so they are very exposed for everyone visiting the house. This means that the design should be timeless and easy to combine with other kitchen utilities.



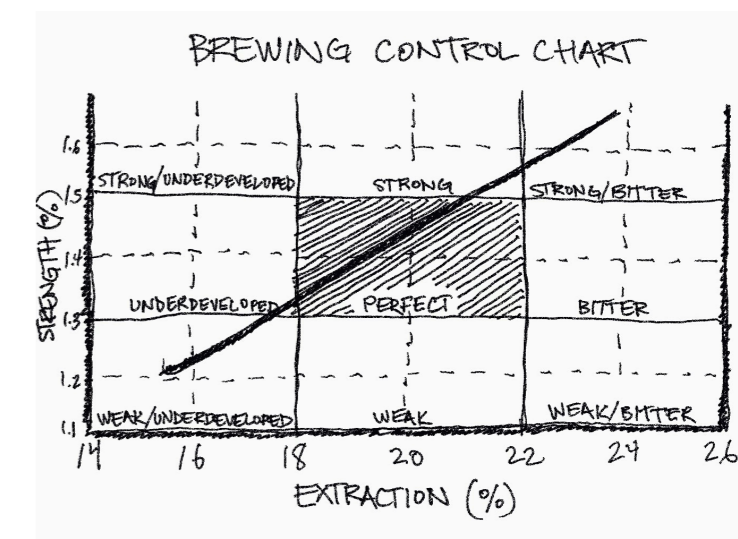
Manufacturing methods / Extraction, preparation and balance

Filter coffee contains the least lipids than in other ways of preparation which means it has less coffee oil than espresso (How to Make Coffee – The Science Behind the Bean, 2016). This is one of the reasons I personally prefer filter coffee over other coffee making methods. I looked up the requirements and proportions from "How to Make Coffee – The Science Behind the Bean" by Lani Kingston, according to the book, when cooking a good cup of coffee the most important rule is to have the right proportions. The book is referring to the SCAA Specialty coffee association which said the general ratio between water and coffee to be 1:17 where 10 gram is for coffee and 170 grams for water. So, if the proportions are wrong in the beginning we end up getting over or under extracted coffee.

Good extraction relations are as I mentioned the most important tool for achieving the ideal cup of coffee. Professionals use the brewing control chart where you can measure the right content of dissolved compounds. In the book, The ideal percentage for drip coffee is 20. (Kingston, 2016)

To achieve the ideal percentage you adjust soluble coffee content by adding or reducing grinding coarseness, adding more cooking time or by doing both (Kingston, 2016, p.82-83).

When using a pour over or manual coffee maker you are usually able to adjust the content and cooking time. In an automatic coffee maker, there is usually fewer options for adjusting. For this reason, the drip coffee maker could be half manual.



Requirements of the product

Traditional electric drip coffee maker structure consists of a water tank, lid, dripper, water heating mechanics, water outlet and kettle. Standard kitchens intermediate state height varies from 350-500mm (Sanoma media Finland oy, 2015) coffee maker should fit between these measurements. Many times the volume in regular drip coffee makers is 1,25l. These standards give realistic boundaries for the scale and volume of the drip coffee maker.

Manufacturability

In the making of filtered coffee, there are certain manufacturing methods, I verified the facts from "How to Make Coffee – The Science Behind the Bean by" Lani Kingston. In the traditional method, the hot water with ideal temperature 91-96 celsius is poured on top of the ground coffee in the filter. If the temperature stays below the solutions is under extracted and light coffee (Kingston, 2016.) This means that the dripper plays a huge role in the end taste, water needs to drip fast enough and evenly.

So, the ideal cup of coffee could be more likely achieved for example adding an automatic scale and timer in the coffee maker.



Benchmark for Drip coffee maker and analysis of the structure

I start my Benchmark from the best known and best claimed Drip coffee makers Ratio and Moccamaster.

I will also benchmark briefly filters and servers because they play a big role in design wise. The ones I chose to benchmark are old design classics or new and worth knowing, also they are products that I know my client's favor.

Benchmark of the structure / Drip coffee maker

Both coffee makers have qualities that meet even the most demanding users expectations. The shapes and parts are functional and easy to use with high-quality materials and design. I will be focusing on achieving Ratio's luxurious design and Moccamaster's efficiency.



RATIO



MOCCAMASTER

Benchmark of the structure / Server

I really like the idea that the server and filter are in one, it simplifies the coffee making operation. I will definitely implement this idea in my design. Glass server is a good option because you can see the substance all the time. Also, the idea that the server is made from double glass to maintain the temperature sounds sensible.



CHEMEX



CHEMEX WITH HANDLE



SAINT ANTHONY PAGE BREWER

Benchmark of the structure / Handle

The reason I chose to benchmarked these three handles is the playful and good-humored design that I would like to achieve at some level in my design as well. The clever way to combine good ergonomics with interesting shapes is brilliant.



THE STAGG ELECTRIC KETTLE



HARIO V60 COFFEE SERVER



HARIO BUONO DRIP KETTLE

Benchmark of the structure / Dripper

The common factor in the drippers is the geometry for which reason nonsoluble coffee mater stays in the column longer resulting in a higher cup clarity. I will be implementing the geometry of these drippers in my design. Also for the sustainable choice, I will be concentrating on the paperless filter.



KINTO STAINLESS FILTER



PHOENIX 70



KALITA WAVE TSUBAME

DESIGN DRIVERS

My design drivers, based on benchmark, research and theoretical framework



AESTHETIC
 SIMPLE
 VERSATILE

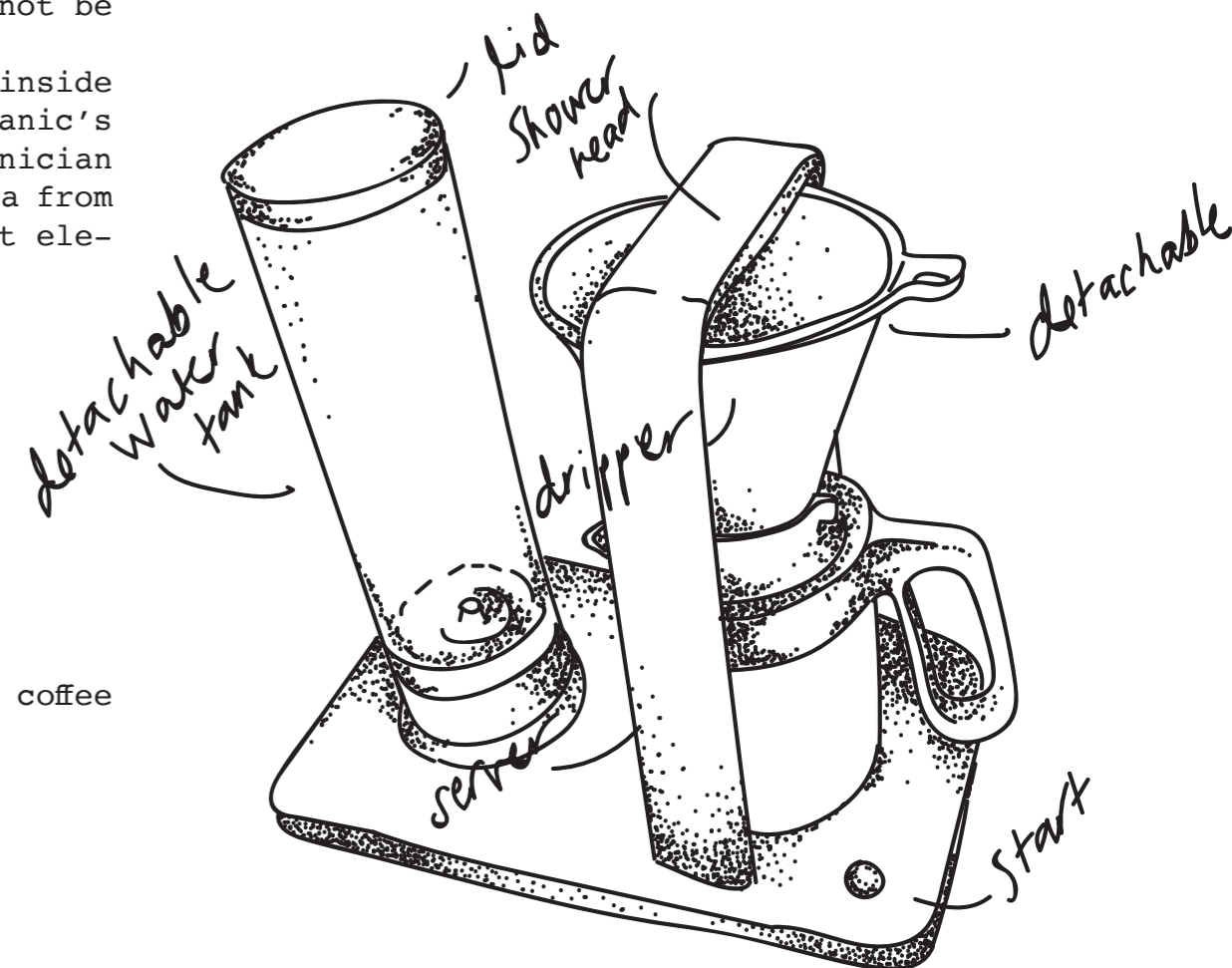


Product analysis as part of the design process

It is important to understand the functions and actualities of products. This case is no different. Even though I am not an engineer and I will not be focusing on assembling the coffee machines electronic parts I am interested to see inside of coffee maker and understand how the mechanic's works. For this, I asked professional technician specialist and service coordinator Vesa Hoikka from Johan and Nyström what are the most important elements for best coffee maker?

The three most important elements for best coffee maker according to Vesa Hoikka are:

1. coffee maker produces enough hot water
2. Temperature stability
3. Good showerhead and dripper

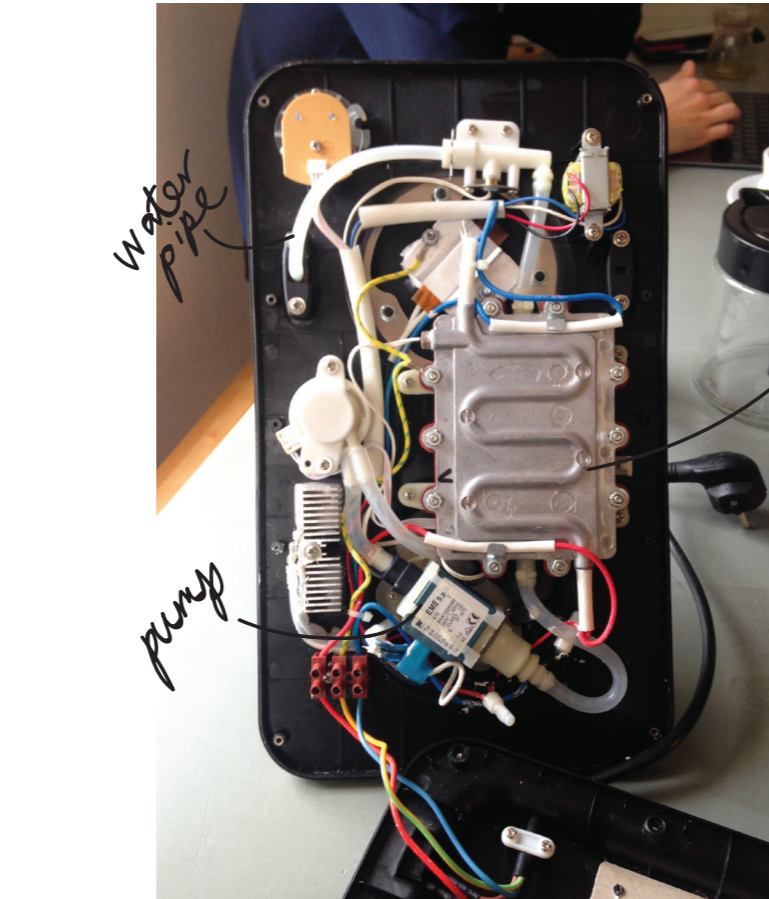


Product analysis

I stripped down Wilfa's SVART Precision coffee maker WSP-2 because of its removable water tank and interesting placement of shower head. My first idea for my Coffee maker was detachable water tank so I wanted to see how it works and what it requires. I am still kind of interested in implementing this type of function in my design.

PROS: Detachable water tank makes it easy to bring it to the sink and fill up with water. The water tank also has graphics on the side demonstrating the water to coffee ratio, which is helpful if the maker would also have a scale attached to it.

CONS: Because the water tank is detachable the pump needs to be strong to move the water through the tube upwards, therefore, the machine makes loud noise.



40

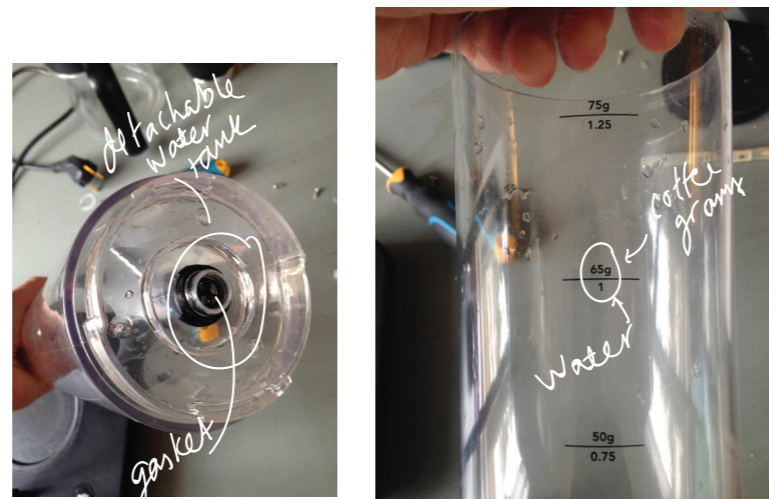


PHOTO 18

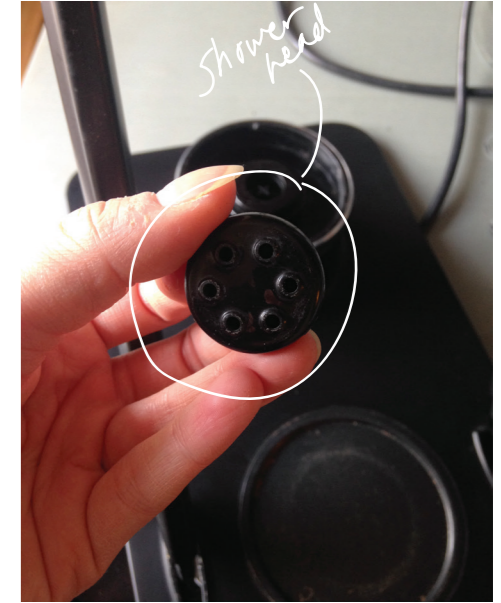
The structure has an arch where the water tube and shower head are placed. After removing the parts I noticed that the water tube only goes from one side of the arch, leaving the other side useless.

The water comes out from the shower head in pulses. But with two tubes the water pressure could be more effective and water would drain more evenly. Also, the shower head is quite small $\varnothing:30\text{mm}$ considering the size of the coffee maker:
 w: 200mm
 L: 360mm

Summary

After analyzing Wilfa's SVART Precision coffee maker WSP-2 I quickly noticed some flaws it had or odd solutions in the assembled parts. Such as very small shower head and the placement of the water tube. Also, the pump is quite big and requires a lot of space.

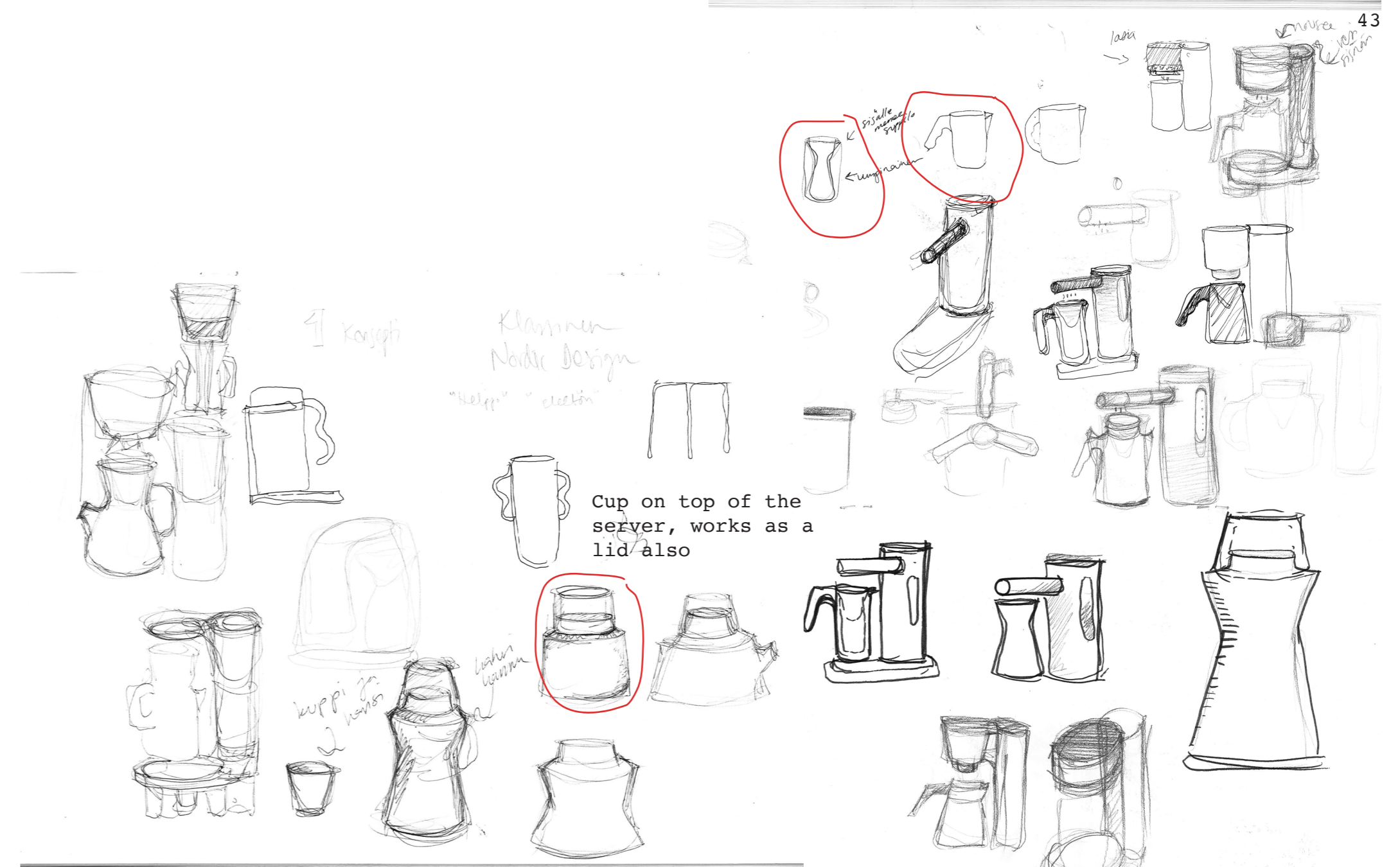
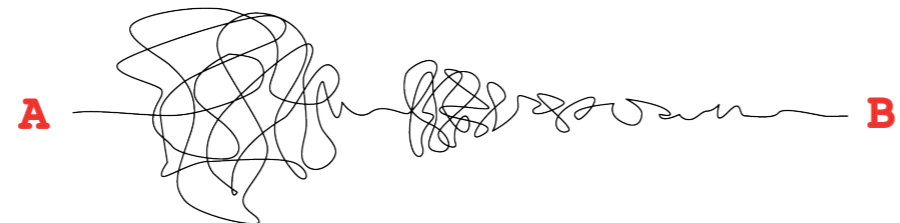
41



Sketching / Creative process

The hardest thing is to maintain simple shapes. My problem is that I make it too complicated, and the design usually fails in its own impossibility.

I tried not to be too critical and think outside the box. Some ideas were too crazy and didn't serve any purpose but after going through the stack of sketches I started to see the ideas that might actually work for my coffee maker design.



1 konsepti

Klammur Nordic Design
"Helppä" "electro"

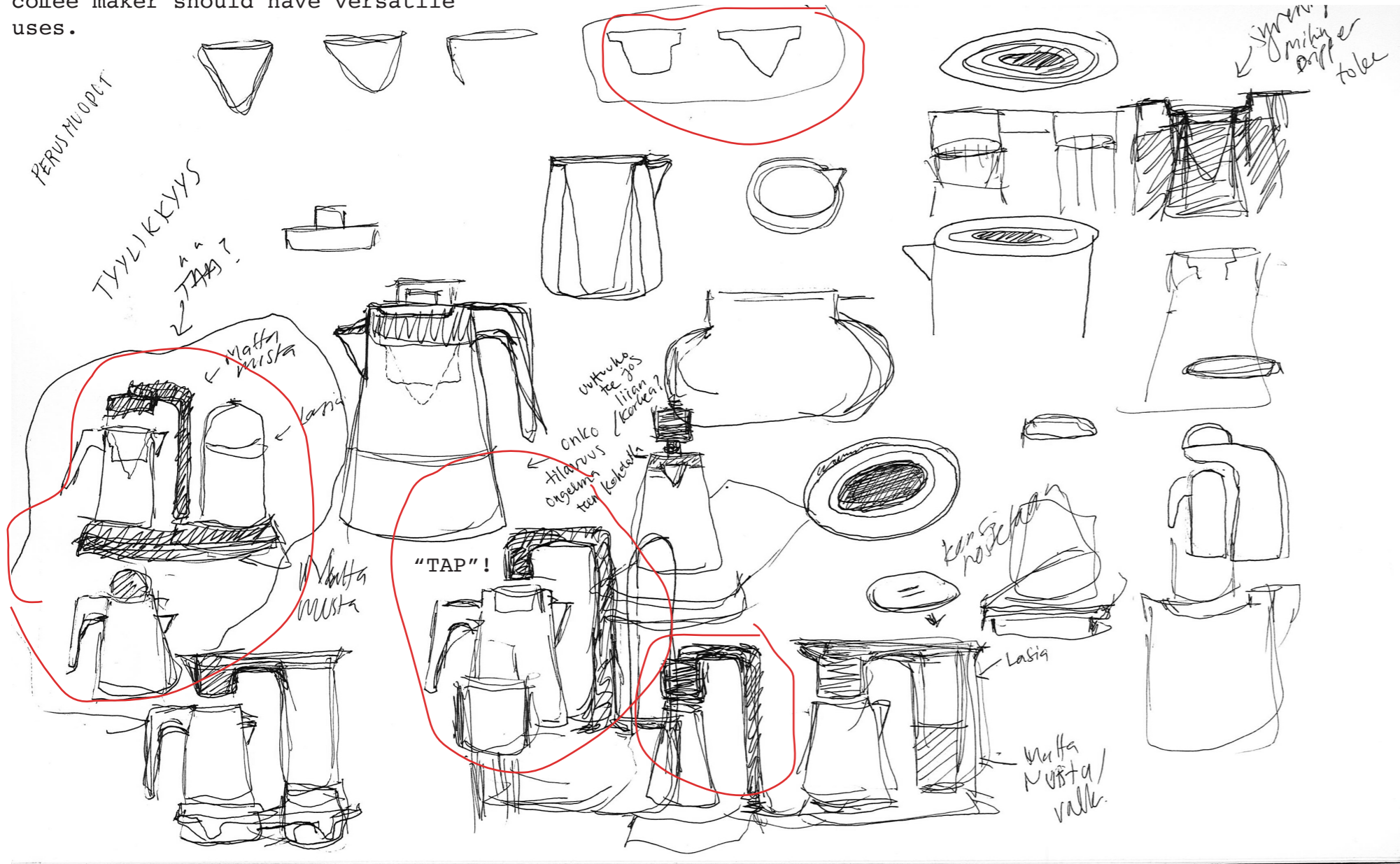
Cup on top of the server, works as a lid also

kuppi ja kanno

kahvi kannu

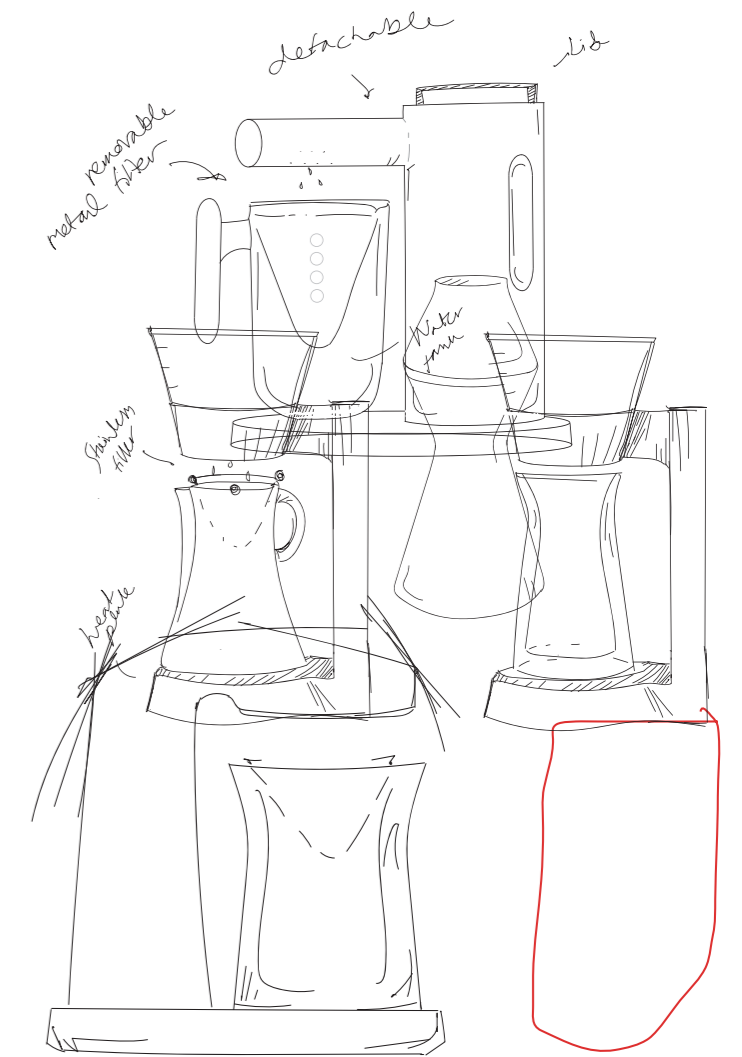
The idea of a water tap started to look interesting.

I also started to think that the coffee maker should have versatile uses.



Sketching / Creative process / Summary

I will focus on the sustainability and I will remove all unnecessary parts such as the use of paper filters and heated plate under the kettle and maybe replace these qualities with scale for measuring the coffee grounds and some other useful technology.



User profiles/ 3 Concepts

I made three concept ideas as a summary from my sketches. I hope it could help me to get closer to my final design. User profiles are for identifying the needs and the character of the coffee makers design and also helps to target the right market group.

THEME 1

Keywords

Fast
"Folksy"
Easy to use

Benchmark

Moccamaster



User

Name: Tom Berton
Gender: Male
Age: 48

Tom works as a principal at elementary school and has three children with his wife. His daily routines are based on work and taking his children to school and hobbies. Days are usually full and busy. On his freetime Tom likes to play golf and listen to music.

Tom Drinks coffee everyday. Two cups in the morning and during work day. In the evening Tom also drinks few cups. He has been using Moccamaster for over ten years and appreciates fast and easy usability.

Concept idea for Theme 1

Design features; convenience, folksy and easy to use.

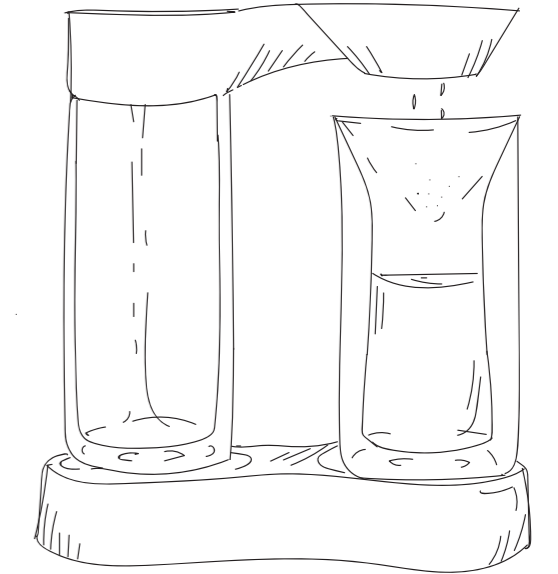
Functions and parts:
top-loading water tank and shower head,
server and dripper.

S Simple design, easy to use, understandable

W Only little novelty value.

O Traditional

T Too much competition with similar coffee makers



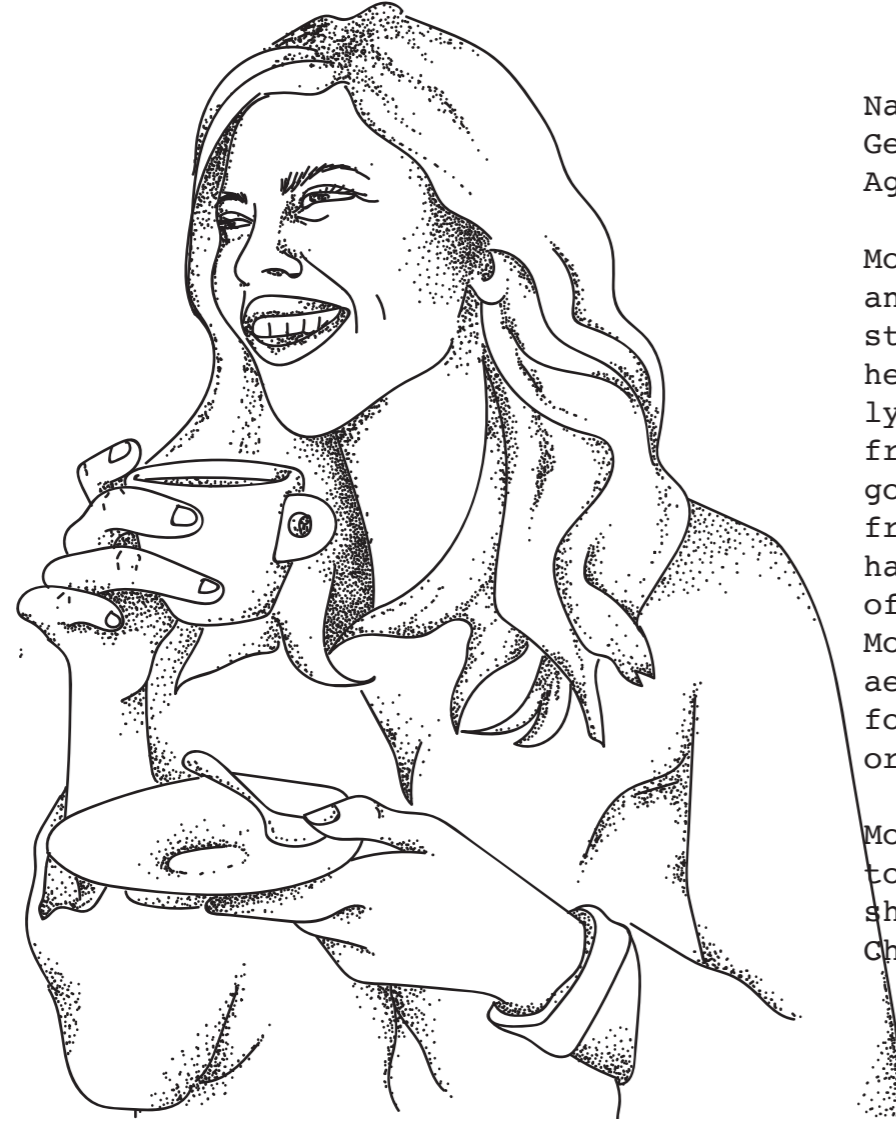
THEME 2

Keywords

Surprising
Personal
Playfull

Benchmark

Chemex



User

Name: Molly Smith
Gender: Female
Age: 28

Molly works as a salesperson and visualist in clothing store. She lives together with her friend in downtown. Molly's days are full of work and free time hobbies. She loves to go to coffee places to meet her friends or just to read. She has a personal style and she often shops in vintage stores. Molly appreciates everything aesthetic and she often looks for stuff that are surprising or unique.

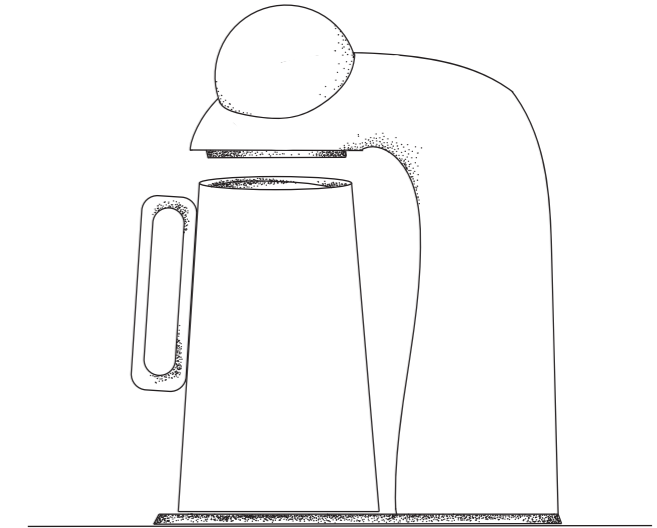
Molly doesn't usually have time to drink coffee at home but if she does she prepares it with Chemex in pour over style.

Concept idea for Theme 2

Design features; Surprising, playful and personal

Functions and parts: Server and dripper, the top-loading water tank and shower head.

- S** Glass ball for showing the running water, personal design
- W** Too special design
- O** New kind of looks, special details, doesn't remind any other coffee maker
- T** Does not please consumers



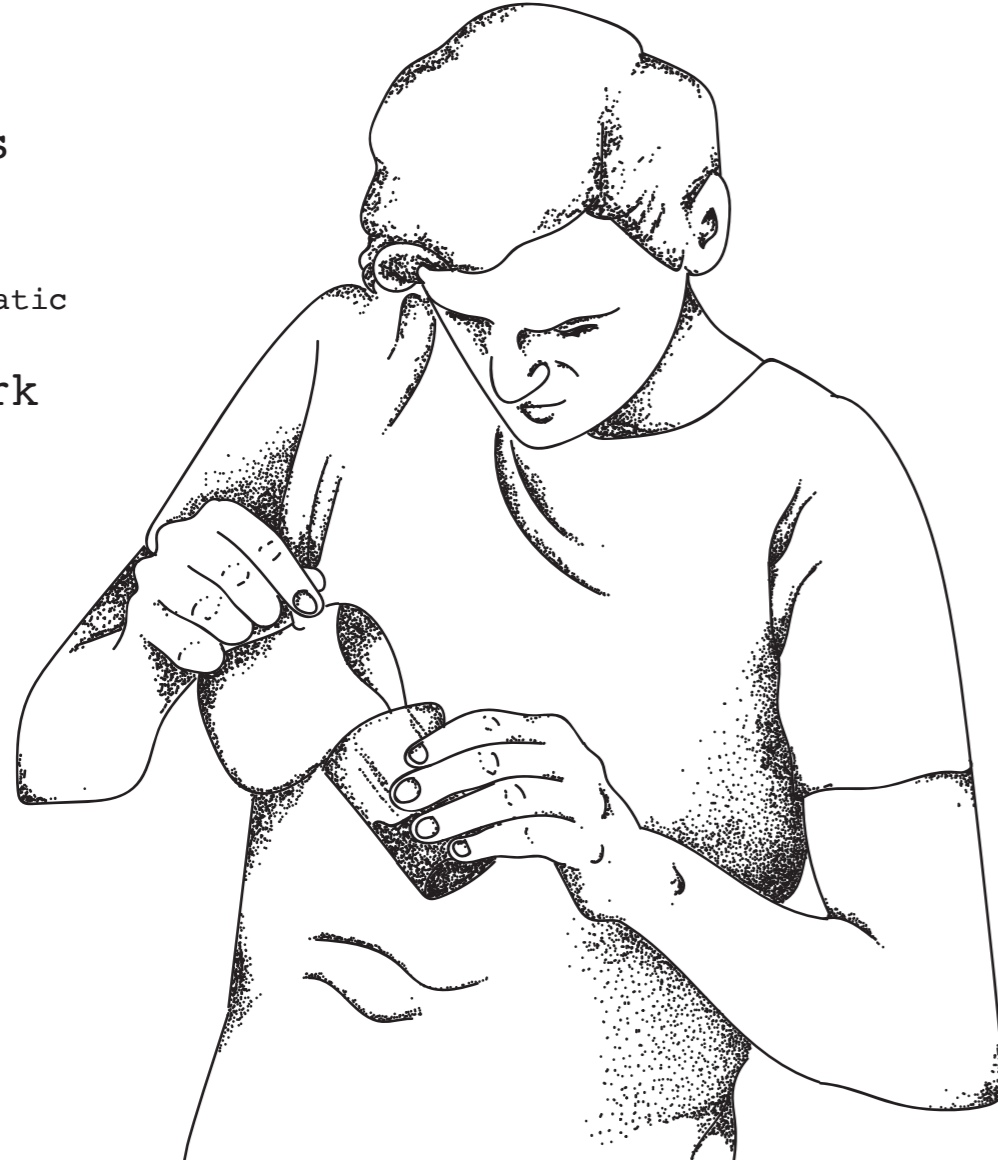
THEME 3

Keywords

Artisan
Quality
Semi- Automatic

Benchmark

Ratio



User

Name: Alex Svart
Gender: Male
Age: 31

Alex is a freelance photographer and graphic designer. He has a studio at his home where Alex usually works from, if he is not doing a photoshoot in location. Alex is very aware about environment and sustainability. He appreciates good quality in food and his quite a hedonistic. He lives together with his partner and they enjoy long breakfasts and having friends over for dinner.

Alex drinks coffee daily. He has tried many different coffee makers such as siphon, drip coffee makers and french press. Now he is using Ratio drip coffee maker and appreciates the clear taste and beautiful design.

Concept idea for Theme 3

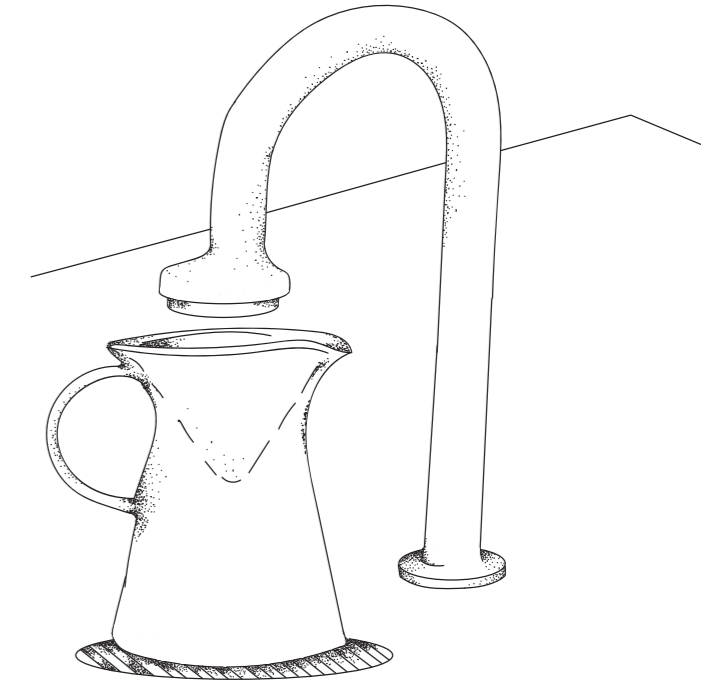
Design features; Quality, Forerunner, and Artisan
Function and parts: Server and dripper, Shower tap and scale.

S versatile use, customizable

W Challenging installation

O Machine as part of the kitchen, Reduce electronics equipment in the household

T considered too innovative



Final concept

After the design process and SWOT analysis, the idea of the final concept became clear.

The final concept is an integrated tap for making drip coffee. The idea of the product is that it's assembled straight to your kitchen. The boiler is placed under the kitchen counter and attached to the water tube.

The tap produces hot water (C?) that can be used in other needs also such as baking, cooking, etc.

My idea is that we should think differently about kitchen electronics and coffee makers. This way we can reduce the number of different products in domestic environments.

When the product is not too specific the range of the users are more versatile and the life cycle of the product increases.

Moodboard



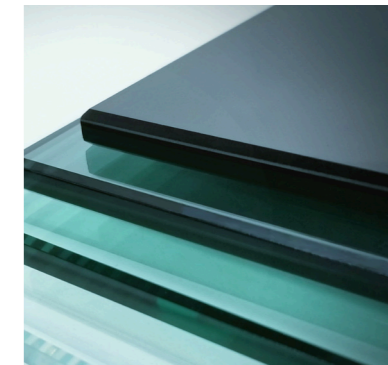
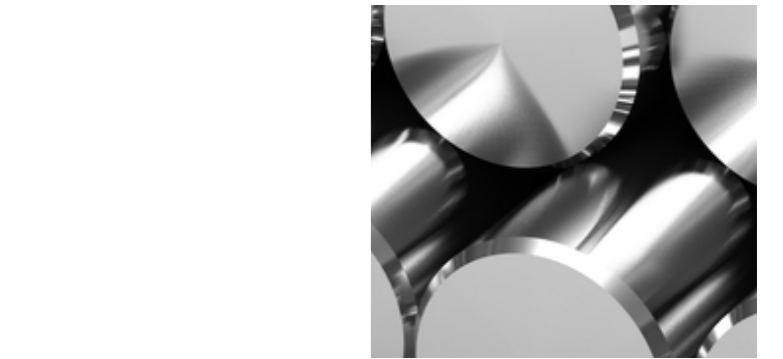
60

Materials

Materials used in Tap coffee maker/hot water cooker are stainless steel and toughened glass. The tap and shower head is stainless steel and scale part is toughened glass.

The server that I designed to go with the Tap coffee maker is made from double glass and the Dripper is thin stainless steel.

61



3D VISUALS



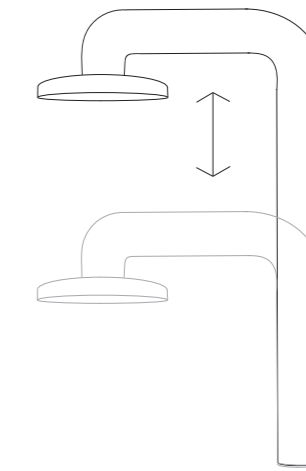


Use and adjustment of the Tap

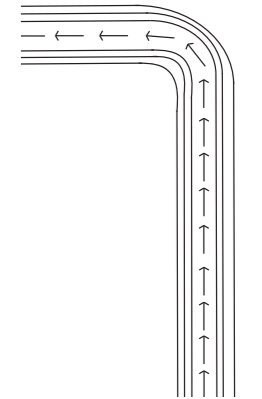
Tap is Height-adjustable which makes it easier to use with multiple ranges of servers and the insulation ensures that the tap is not too hot to touch. The tap can be turned 180° this feature is helpful when adding coffee or other substance in the dripper.

The tap also has different shower heads to choose from. Purpose of different shower heads is to adjust the cooking process. For making coffee the shower head can be wider, allowing the water to flow evenly for a larger surface.

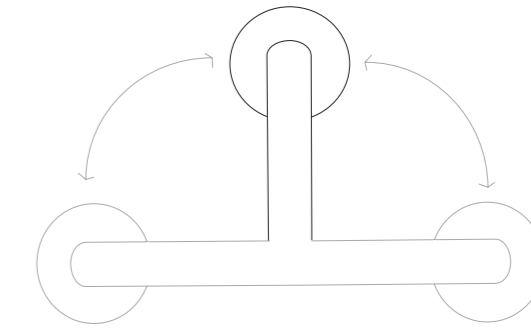
For adjusting the tap height push it up and down. The silicon part allows you to move the tap for the desired height.



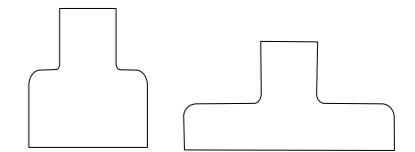
Height-adjustable



Insulation



Turn's 180°



replaceable shower heads

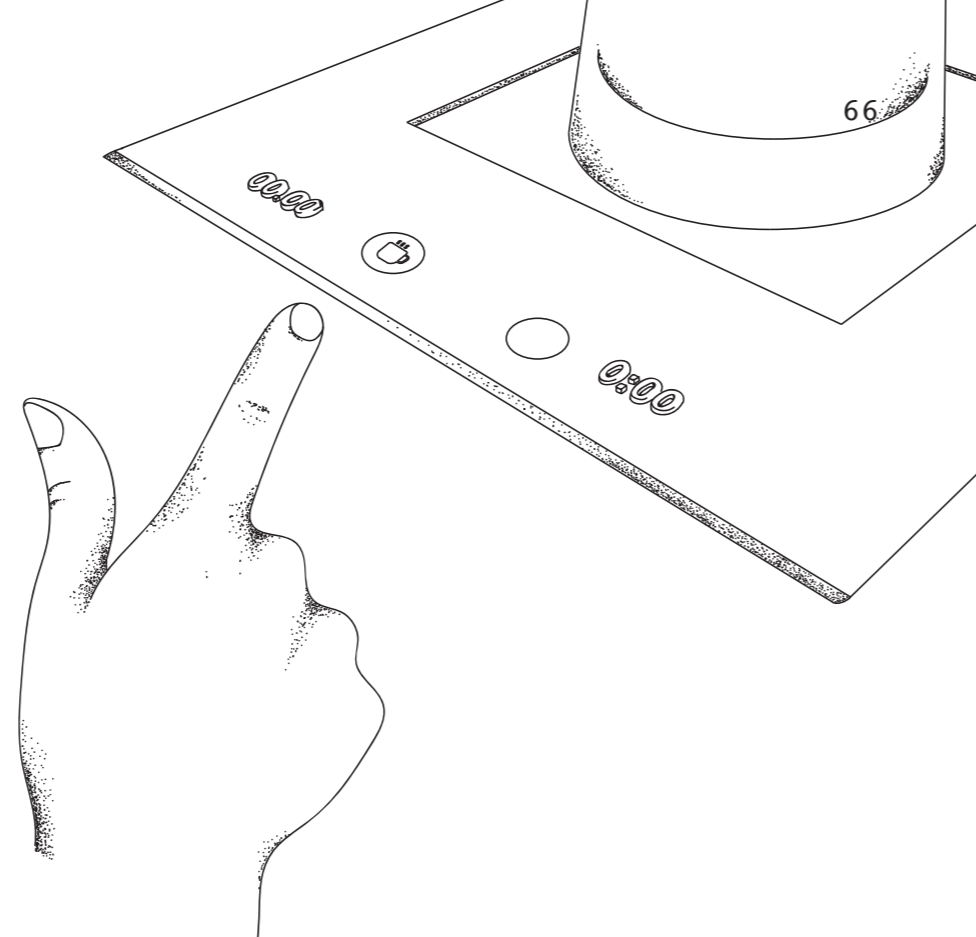
User Interface

When making coffee, place your server on top of the scale to activate the scale, then tare it by touching both touch buttons at the same time.

After taring your scale add the desired amount of coffee grounds on the dripper. The machine is calibrated with a standard setting where 6g of ground coffee equals 100 ml of water. After you have added coffee, push the touch button with the coffee icon to start the tap.

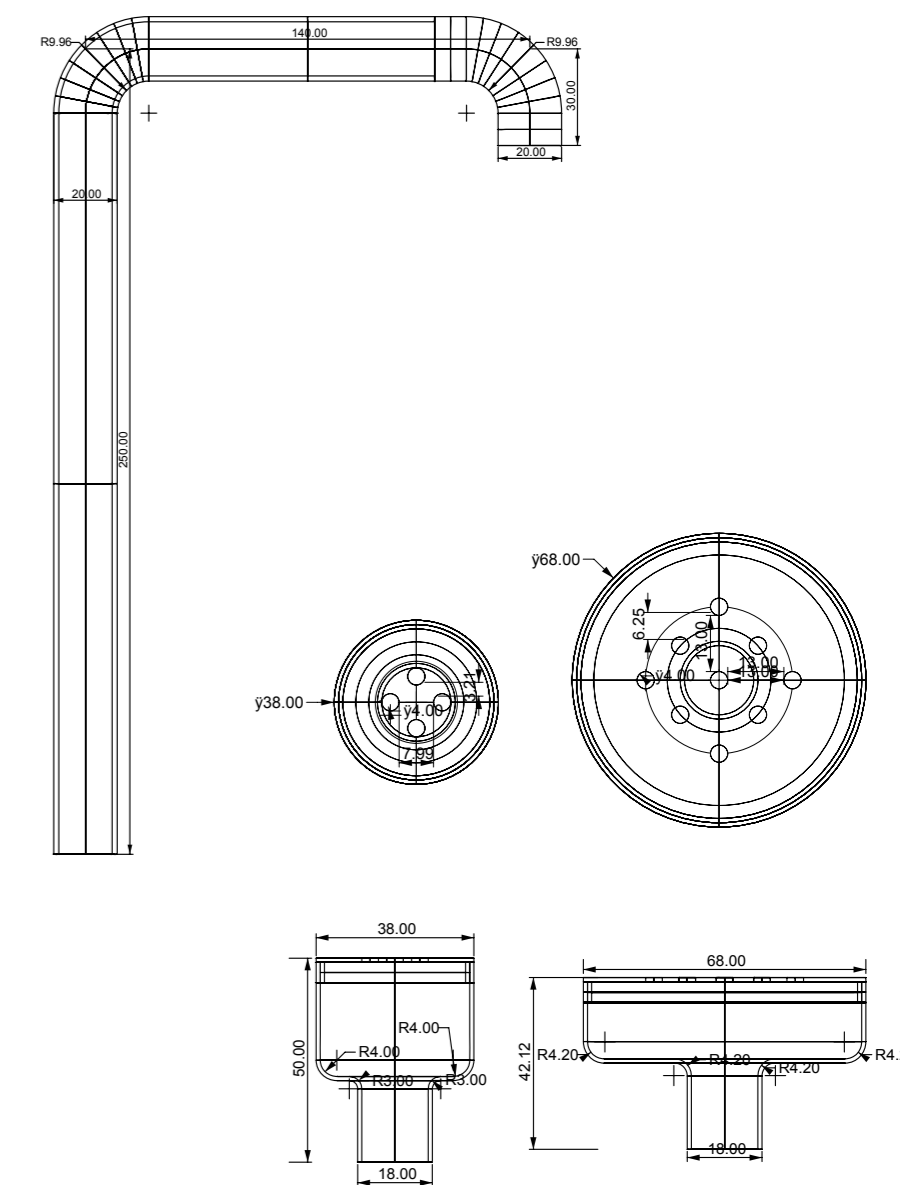
Because of the standard settings, the maker knows how much water a certain amount of coffee needs and stops when the right amount has been reached. When using the coffee making option the water comes in pulses keeping the extraction and timing perfect. The timer indicates the length of the coffee making operation.

When using the hot water option press and hold the rightmost button until the desired amount has been reached. The water tap doesn't work if the server is not placed on the scale.



Measurements / Tap

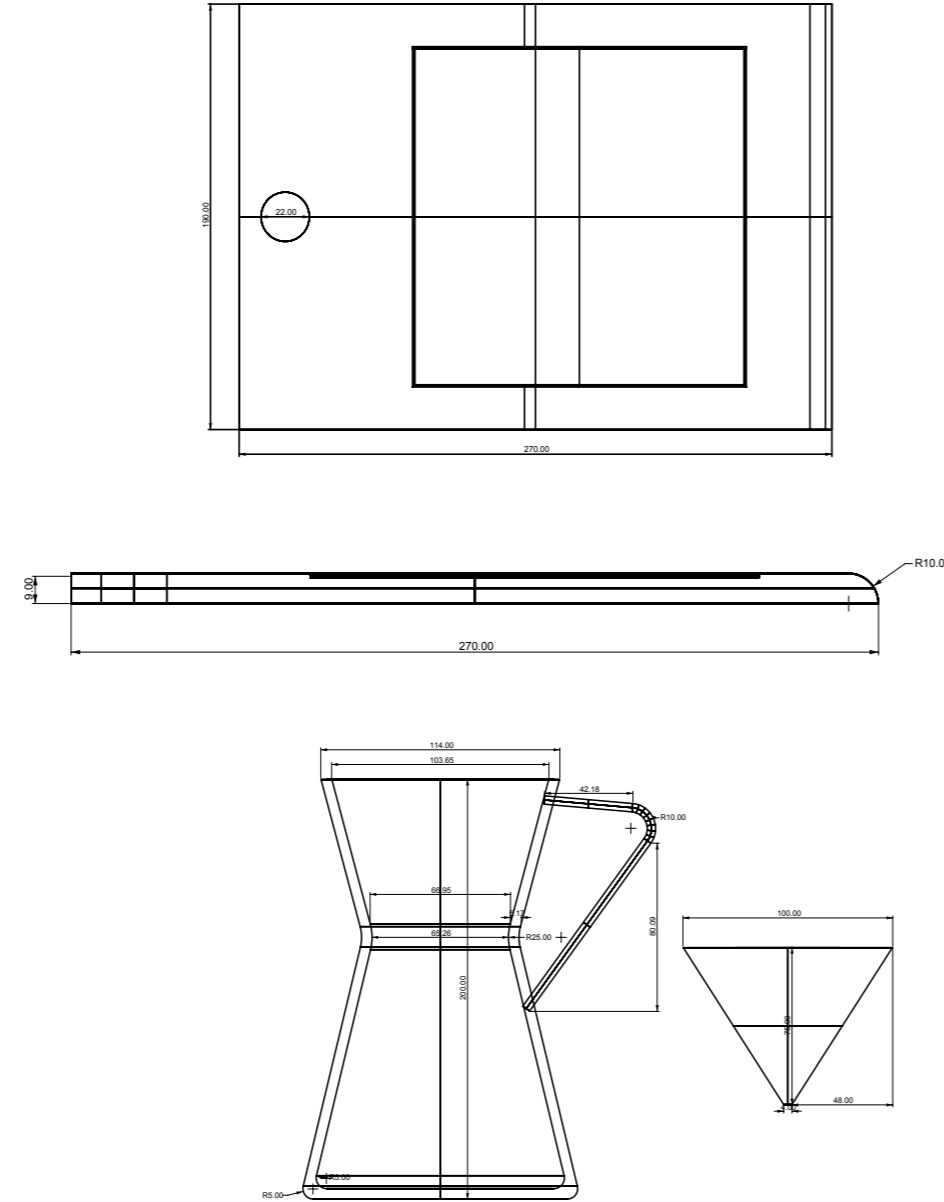
The height of the pipe is 250mm. Together with the scale the height is 260mm. The Radius of the pipe is 10 and the length is 140mm. The pipe has detachable water heads for changing the water supply.



Measurements / Scale and server

Size of the scale is 270 X 190mm. The scale's top part thickness that remains visible on the table is 10mm. The scale is mounted to the kitchen counter and the lower part that contains the scale's technology stays invisible to the eye.

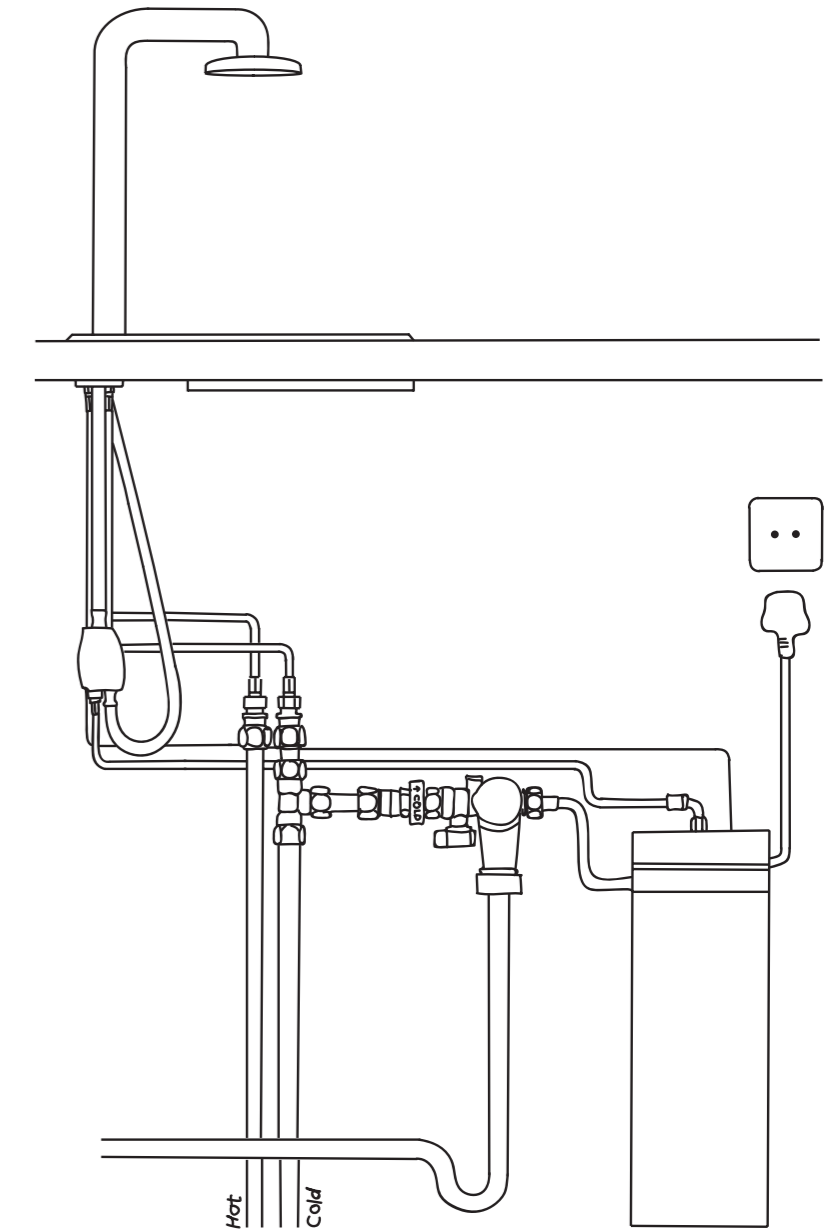
The server has quite a classic hourglass shape and double glass to maintain the hot temperature. Dripper has similar measurements to Kinto stainless filter.



Layout of techniques

The techniques required to use the tap are Tank that boils the water up to 100° and a cold water pipe for mixing. The ideal would be to attach the tank and water pipes to the kitchen plumbing and drain.

The technique for the piping system is borrowed from "Qooker"



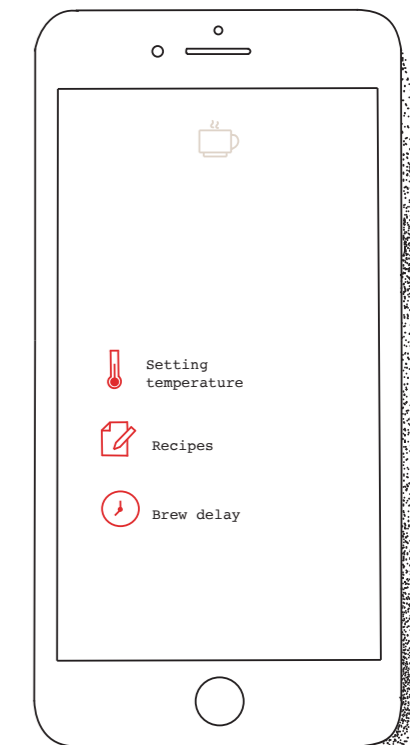
In the location



Application user interface

For future development, I would like to add an application to go with the Tap. The possibilities would be advanced settings that are accessible through an application on smartphone and computer. Qualities such as setting and changing temperature, saving recipes, brew delay, etc.

The application is connected to a machine with bluetooth. This would automate the operation and allows for anticipation of use



Conclusions

The final design managed to fulfill the qualities and standards I had set in the beginning. It turns out to be versatile and simple. The shower head and scale are in focus and all unnecessary parts are removed. The concept is reflecting the 4th coffee movement and also the future of the coffee. When preparing coffee it helps and guides you to make the best of it and when not drinking coffee you can use it for other needs.

Further development

For future development, the maker could have an option to be attached to the sink so that it would fit better in smaller kitchens as well. The Tap coffee maker could also have more personalized server but I kind of like the idea that you can use the ones you have or custom it for your own needs.

Also, the application could be developed further with other functions and options to be better suited for regular user needs as well.

References

Lari Salomaa and Petri Leppänen, 08/2018,
Coffee Revolution, Like Kustannus Oy Helsinki

Lani Kingston, 02/2016, How to Make Coffee –
The Science Behind the Bean, Like Kustannus Oy
Helsinki

Kahvi- ja paahtimoyhdistys, 16.04.2018 Kah-
vin kulutus pysynyt vakiona vuosikymmenet –
vaaleapaahtoinen edelleen suosituinta, Marlee-
na Tanhuanpää, [http://www.kahvi.fi/tiedotteet/
kahvin-kulutus-pysynyt-vakiona-vuosikymmen-
et-vaaleapaahtoinen-edelleen-suosituinta.html](http://www.kahvi.fi/tiedotteet/kahvin-kulutus-pysynyt-vakiona-vuosikymmenet-vaaleapaahtoinen-edelleen-suosituinta.html),
(luettu 10.2.2019)

Johan & Nyström, Paahtimo-tervetuloa mukaan
kahvivallankumoukseen, [https://johanochnystrom.
fi/paahtimo](https://johanochnystrom.fi/paahtimo), (luettu 20.2.2019)

Sanoma media finland oy 2015, Keittiön mitoitus
[https://www.rakentaja.fi/artikkelit/10614/keit-
tion_mitoitus.htm](https://www.rakentaja.fi/artikkelit/10614/keit-tion_mitoitus.htm), (luettu 10.3.2019)

Eero Tarasti, musiikki ja humanismi, suomen
saloilta pariisin salonkeihin
esseitä vuosilta 2003 -2013, Kustannushai,
s.111

<http://www.quooker.co.uk>

Photos 1-20

www.like.fi
www.robbsbasta.se
www.amara.com
www.kurasu.kyoto
www.fondazionealdorossi.org
www.ratiocoffee.com
www.gracenoteboston.wordpress.com
www.filtercoffeetea.com
www.moccamaster.com
www.onevillagecoffee.com
www.crema.fi
www.slurp.coffee
www.thebenchstandard.com
www.roastmarket.de
www.hario.jp
www.kurasu.kyoto
www.stanthonyind.com
www.kalita-usa.com
www.wilfa.fi
www.dyson.com
www.farml.staticflickr.com
Moodboard: www.pinterest.com
Materials: www.indiamart.com
www.autocomponentsindia.com
www.onedayglass.com

Photos

Noora Karila

Illustrations

Noora Karila

Renders

Noora Karila