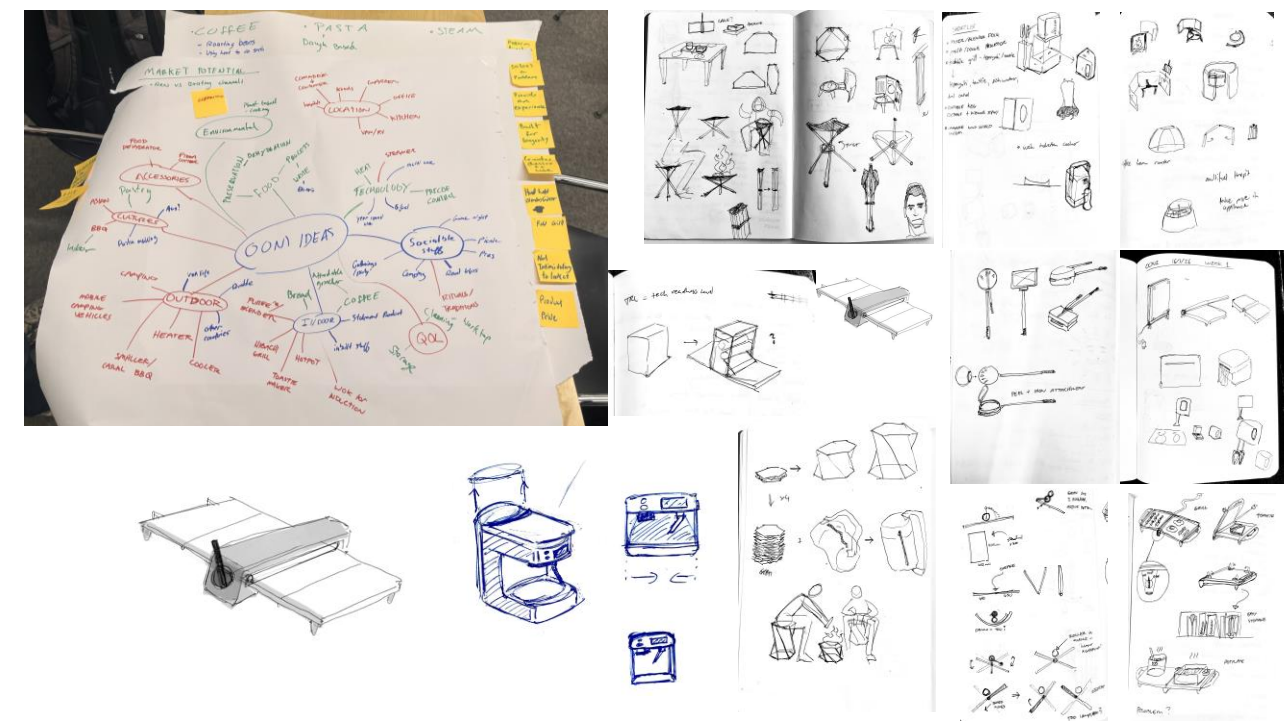




Brainstorming potential products, categories and markets. Lots of online research into industry trends, pain points, market validity, business opportunity and feasibility was performed alongside sketches and product ideation.



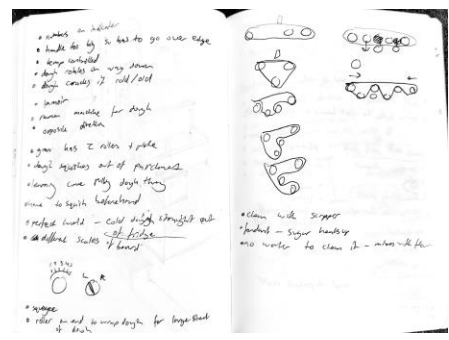
Shortlisted ideas by week 4: Dough sheeter, Espresso Machine, pie iron, foldable grill, camping stool or campfire shield. These product proposals had the most solid data backing them. More detailed market research was performed on these products.



For a while it was between 2 ideas: Dough Sheeter and Espresso Machine. Further in-depth research for these two areas was performed.

Dough Sheeter – Problems in Current Market

- Too big** – reversible options take up too much space with a massive board
- Inconsistent results** – Smaller, kitchen friendly options compromise on consistent results and useful features
- Poor Aesthetics** - Current options look unappealing and industrial
- No market leader** – most options look the same with inconsistent prices, one popular model is a repurposed clay roller only available via Etsy



Espresso Machine – Why Ooni?

Why Ooni? Leverages Ooni's experience in designing premium, performance-led appliances that bring professional cooking processes into the home. Identifies an opportunity to reframe espresso making as a social, intuitive, and confidence-building experience, rather than a technical or intimidating one. Focuses on craft, consistency, and pride of ownership over feature density.

- Coffee is now virtually synonymous with creating a social environment
- Hands on, artisan processes in which the user's interaction is critical
- Huge potential for accessories/upgrades in future

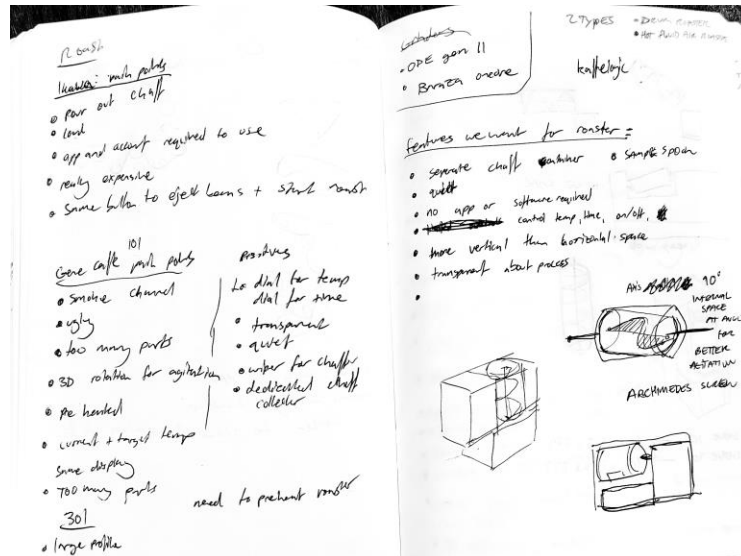


An Ooni Espresso machine will:

- Focus on core performance** - Accurate extraction quantities at a more accessible price. Stable 9-bar extraction using OPV and reliable thermal control. No-drip post-brew through a 3-way solenoid valve
- Respect domestic space and use** – Compact footprint with a stable, confidence-inspiring base. Designed to accommodate different cup sizes. Simplified cleaning and maintenance
- Support social, shared use** – Sufficient power to extract and steam milk concurrently. Intuitive controls that reduce user friction. Encourages participation rather than individual mastery.
- Enable a wider ecosystem** - Strong accessory potential (grinder, tamper, keepcup, storage). Modular approach rather than built-in complexity

Espresso, or rather coffee, stood out to us. We felt as though there was a strong business opportunity in the coffee industry, we just needed a more concrete thread to connect to Ooni. From here, the idea of a coffee roaster was born, and we felt passionate and excited in developing an Ooni coffee roaster.

Competitor products. We spent a lot of time fully understanding the competition and current market. We learned the pros and cons for all mainstream roasters through online and physical research and testing.

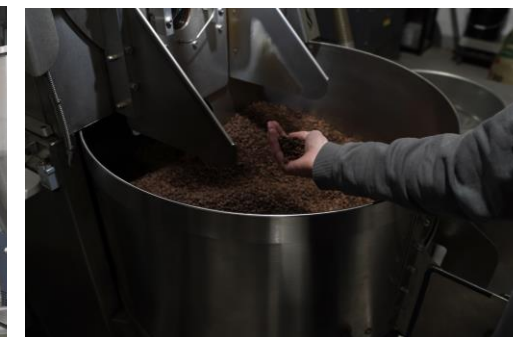


Left shows pain points with current market, and how those findings started to drive an early design specification for our roaster. Additionally, below shows supporting data found for the roaster business case.

Roaster – Business Case

- Global roasting market to grow by CAGR of 4.2% by 2033
- In 2023, 2.7 million smaller, at home units sold
- Development focus on compact, low emission machines
- Roasted Coffee Market | Global Market Analysis Report – 2035
- 55.4 to 88.5 billion USD global roasting market (incl. commercial)
- Coffee Roaster Market Forecast | Growth & Future Insights- 2035
- 0.66 to 1.18 billion USD global – contradicts to above
- home roasting makes up ~1/6th of market

We wanted opinions from professionals and enthusiasts, so we organized team visits to local roasteries to gain understanding of the users, opportunities and authentic roasting processes.

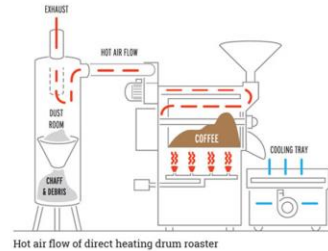


Our product design specification and product pitch was informed by research of current market shortcomings and Ooni capabilities and company ethos.

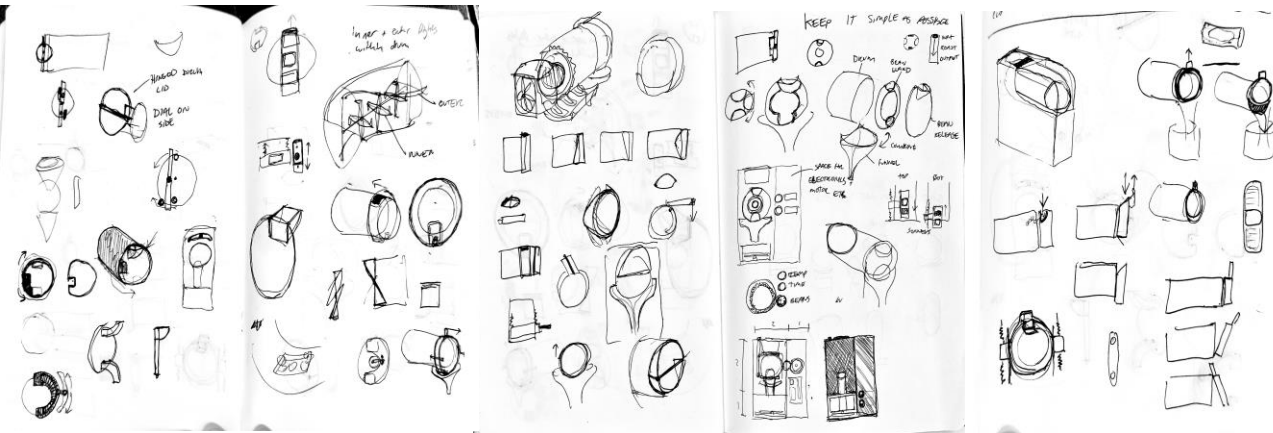
Product Description:

A professional and authentic quality roast in the home setting. Smaller profile, easier to use, and a more involved, controlled process than competitor brands.

- **Heating Type:** Induction heated drum with airflow
- **Temperature Range:** 0°C – 250°C
- **Bean Volume:** 250g
- **Size:** Small enough to fit on your kitchen counter in harmony with other products
- **Additional Features:**
 - Chaff filter and collection
 - Smoke extraction/filtration
 - Precise roast controls
 - Optional software and companion app
 - Clarity on machine processes
 - Infrared temperature sensor



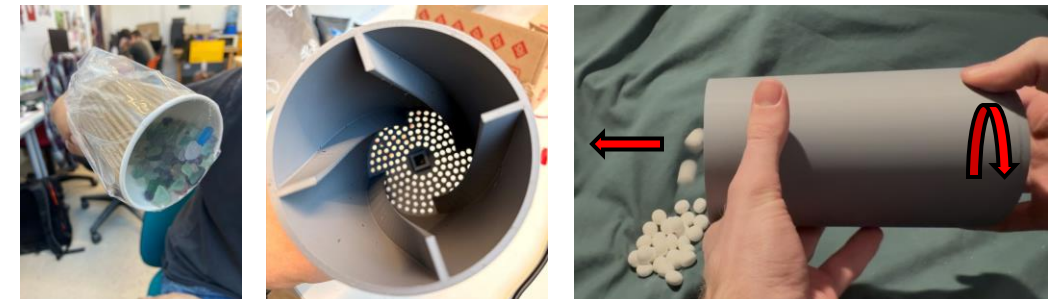
With this PDS in mind, we could begin designing and reimagining a coffee roaster with all these features. Sketches below focus on bean mixing/distribution and input/output of beans. Since we were using the authentic roasting method of radiation + convection, a horizontal drum was required for even heat flow + bean mixing. This heavily informed the design of the entire product.



We took a few of these mechanisms and prototyped them at a small scale.

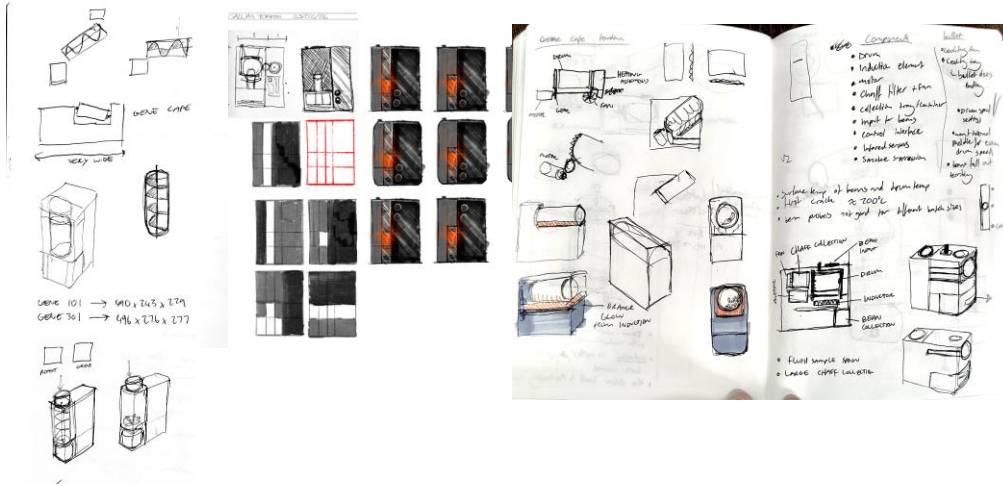


While none of these ideas made it to the final iteration, the concept on the left is closest to our final design. The beans come out an opening on the flat edge of the cylinder, pushed by paddles within the drum. Instead of a rotating release mechanism, our final version would have a sprung hinged flap to output the beans into the funnel built within a door.

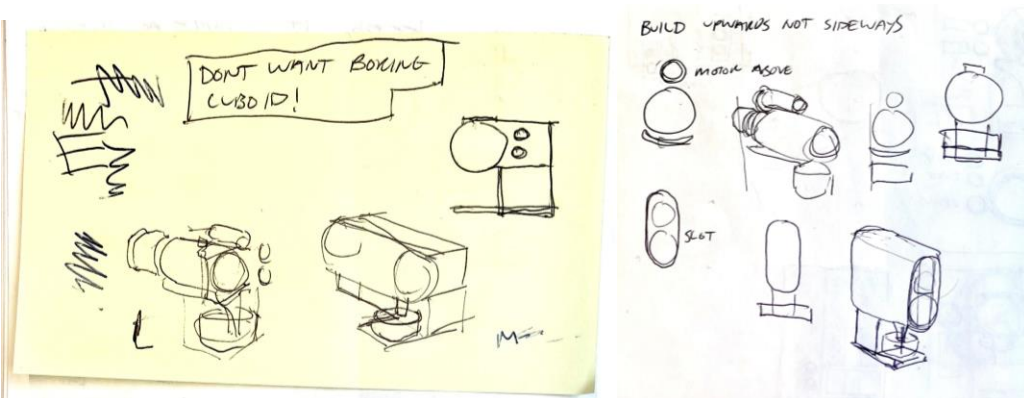


Drum prototyping. Using paddles to direct beans to front of the drum.

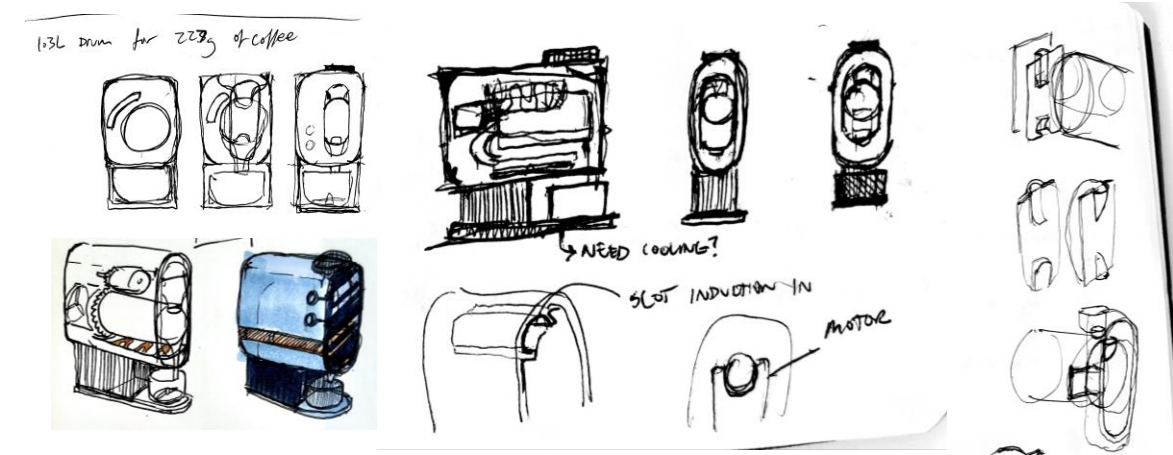
Explorations into the overall form of the roaster. A consistent theme across designs is having a clear segment to see into the roaster, making the rotating drum and red-hot glow of the element visible.



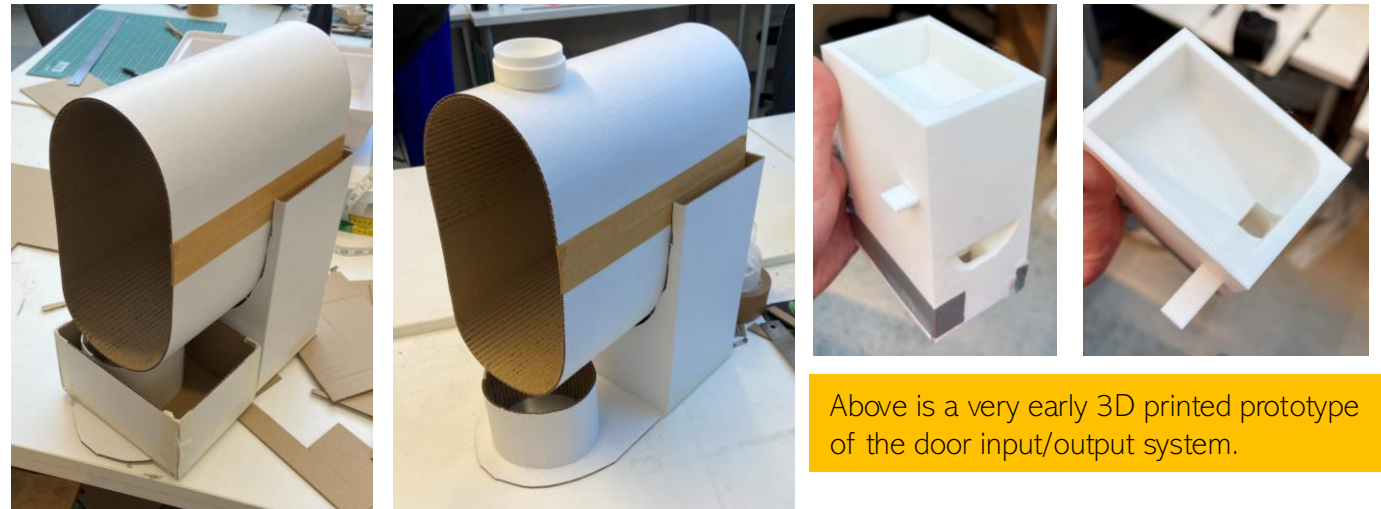
Initial ideas all felt too boxy. To think of new forms, the internal components were drawn first, with shells drawn around them to think of unique shapes. We also wanted to build the product upwards rather than outwards, in order to save countertop space.



Overall form is coming together, being an extruded slot shape on a rectangular base. We also develop the idea of the door system. Designing all the complexity of bean input/output into a large door on the front, which allows for easy cleaning of the roaster.

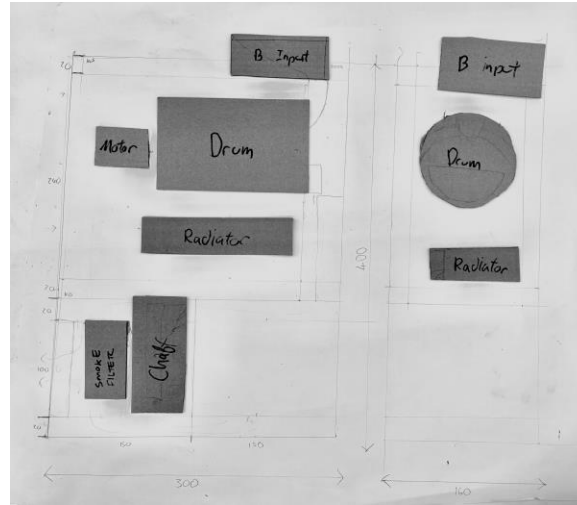


Rough scale model prototype made from cardboard. This one ended up being larger than our final version.

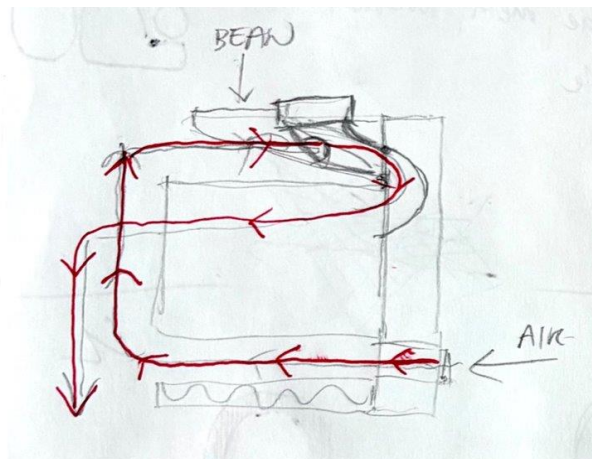
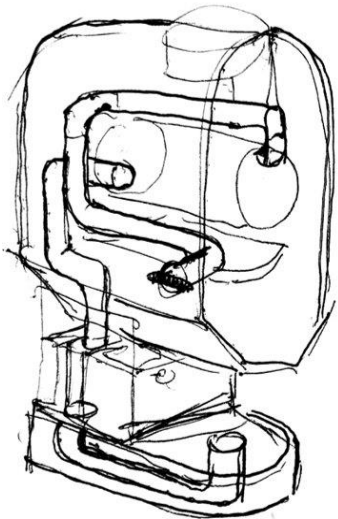


Above is a very early 3D printed prototype of the door input/output system.

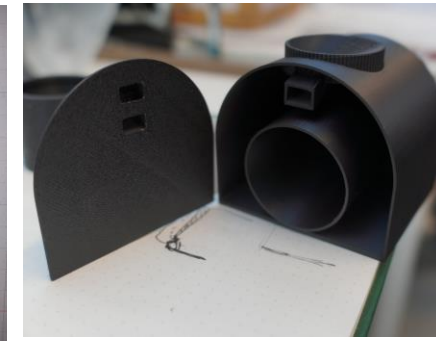
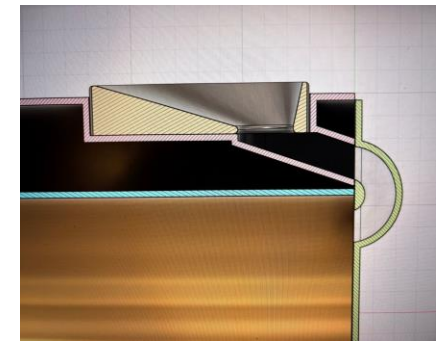
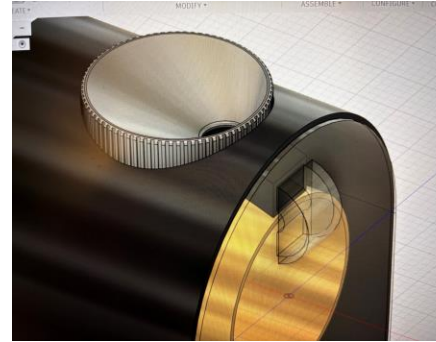
Deciding and laying out our model dimensions to allow us to work on our separate sections in CAD.



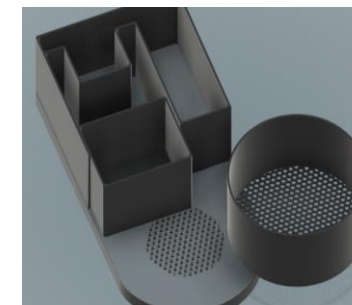
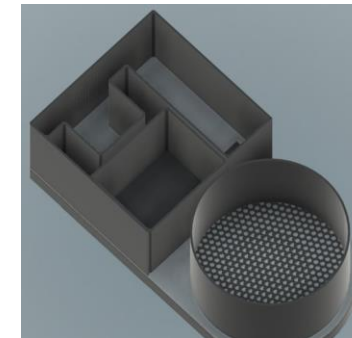
Choosing how the airflow system would work through the roaster.



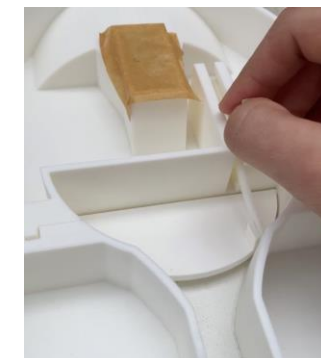
Input/Output – From the beginning we wanted our roaster to have a two-stage input and output of the beans. This was to protect the user from the heat of the chamber as well as provide an extra layer to the sensory experience throughout the process. This was our initial design of having it pass through the door.



Prototyping the base section in CAD, considering electronics, chaff collection, and roasted bean collection.



Prototyping the output flap and how the user would interact with it.

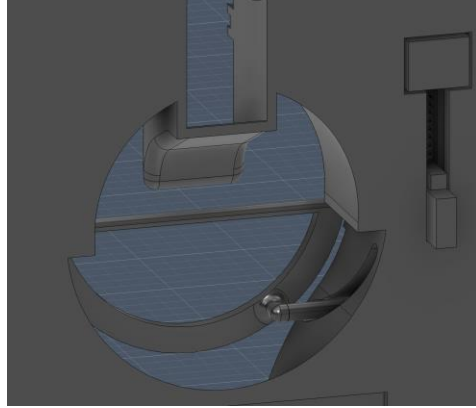


Input/Output – We then refined the model to a fully working prototype of how the 2-stage system would work.

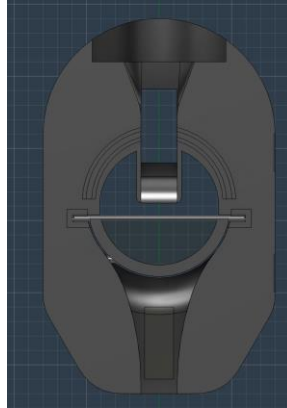
Input Dial



Door flap



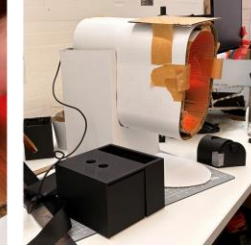
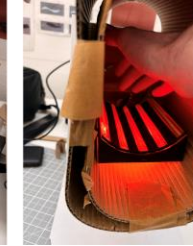
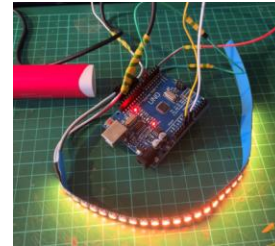
Door Channels



Chaff Tray – A push latch was used to create a tactile click with hidden hardware, allowing the tray to seamlessly blend into the surface of the roaster.

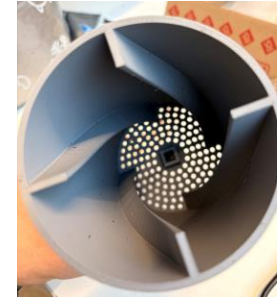


Heating – We initially looked into induction heating, but this is not the traditional way of roasting, so we decided to go for a radiative heating element that would heat both the drum and the air from the intake.



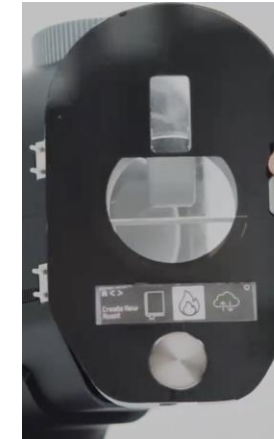
We prototyped this using translucent filament and addressable LEDs to create a gradual glowing effect.

Mixing – The fins on the inside of the drum were designed to always push beans towards the front of the drum.

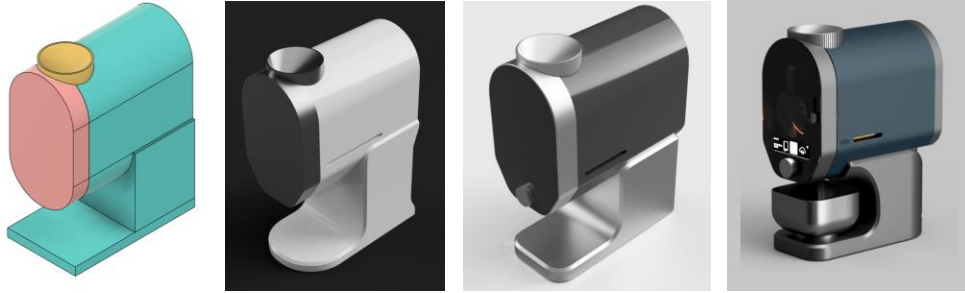


This allowed the beans to flow out of the drum when the latch was opened, leaving no bean behind.

Door Hinge – A hinged door for ease of access for repair and cleaning.



Evolution of industrial design, starting from the basic slot and base shape into a product that looked visually appealing and distinctly Ooni.

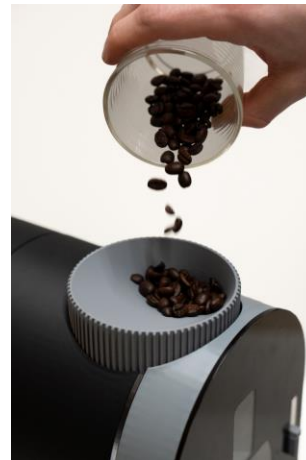


Features include rounded hexagonal angles to mirror Ooni design language, familiar components such as dials, displays and clear windows, as well as carefully considered ratios of colours, materials and finishes.

We created countless renders (~14 gigabytes) trying to get the perfect setup, making sure the resolution would be suitable for printing on the final A1 poster.



User Cycle – Preheat drum > Select/create roast profile > Input green beans > Observe > Discharge roasted beans > Discard/recycle chaff > Clean inner surfaces



We filled the base with scrap metal to give the model a realistic non-cheap feeling weight, which also allowed the chaff tray to be removed with one hand only. We then started glueing all of the parts together from the base upwards.

The wiring and components had to be carefully threaded through the holes at the rear of each part of the housing.

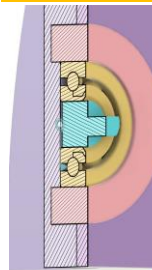


The drum was sagging due to the wall it was mounted on not being secured at the top. We designed a bracket to secure the wall to the inner housing, preventing it from falling forward, as well as rollers to support the free end of the drum.



We were extremely careful when joining each consecutive piece, ensuring that the electronics still functioned and that the mechanisms were put in their precise locations.

We made a simple bearing mount for the dial we had, so that it would spin smoothly.

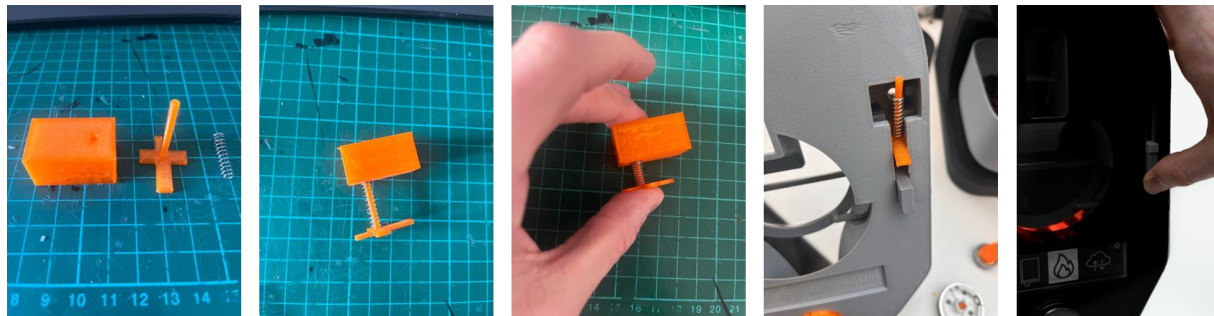


These pieces had to be reprinted almost 10 times to get the correct tolerances!

We discovered that the force of the beans at the front of the drum was pushing the output flap slightly ajar and causing beans to get stuck between the flap and the drum, jamming the rotation.



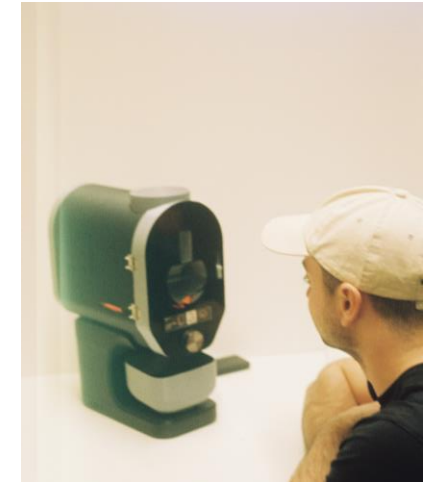
We quickly developed a spring mechanism to keep the flap pressed firmly shut until it was manually opened.



Unconventional materials used to sell the illusion: Car window tinting film, A repurposed dial from an Ooni Volt, Headphone packaging foam, Dried moss.



We were extremely happy with the final prototype. We felt it demonstrated both the aesthetic and functionality of our design very well.



We started mocking up what we wanted our poster to look like.

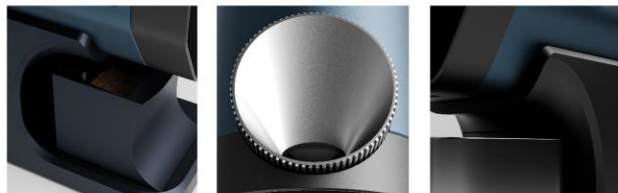


We wanted a clean and concise poster that focused on showcasing our product and key features.

Calum / Sonny / Kai



Kajo offers the highest quality coffee roasting experience at home. Designed around the authentic roasting process, Kajo involves the viewer in the sensory spectacle of roasting beans.



The final presentation and exhibition went great, and we came out of this project extremely proud of what we had produced.

