



alun hopkins

design portfolio

**hi,
welcome to my portfolio**



what's inside



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toaster



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bag holder



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speaker



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laundry app



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toiletries organiser



Toaster Innovation Project

Taking the archetypal product of the toaster and looking exactly at what it provides, how it could be improved and providing solutions for a replacement product. This essentially involved redesigning a new method for “cooking bread”, focusing primarily on improving the user experience.

Existing toasters were explored in terms of their user interactions, form, function, sustainability and manufacture and then own ideas were modelled through sketching and CAD.

The final outcome was a toaster for a single slice of bread, targeted at users who want to make their experience better in a sustainable way. This approach uses heated rollers and micro motors to pull the bread through the product and deliver the toast onto a plate.

1

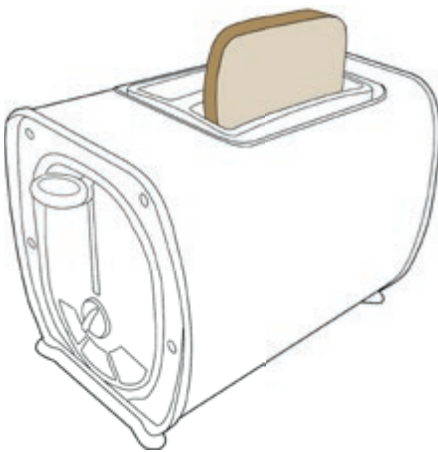


12 weeks



Individual

task analysis



INSERT BREAD

The user puts one slice of bread in a traditional toaster ready for toasting.

TOASTING

Energy is wasted as both slots heat up when the user slides the lever.



REMOVE TOAST

The user has to pull toast out of the toaster and move it onto a plate.

CLEANING

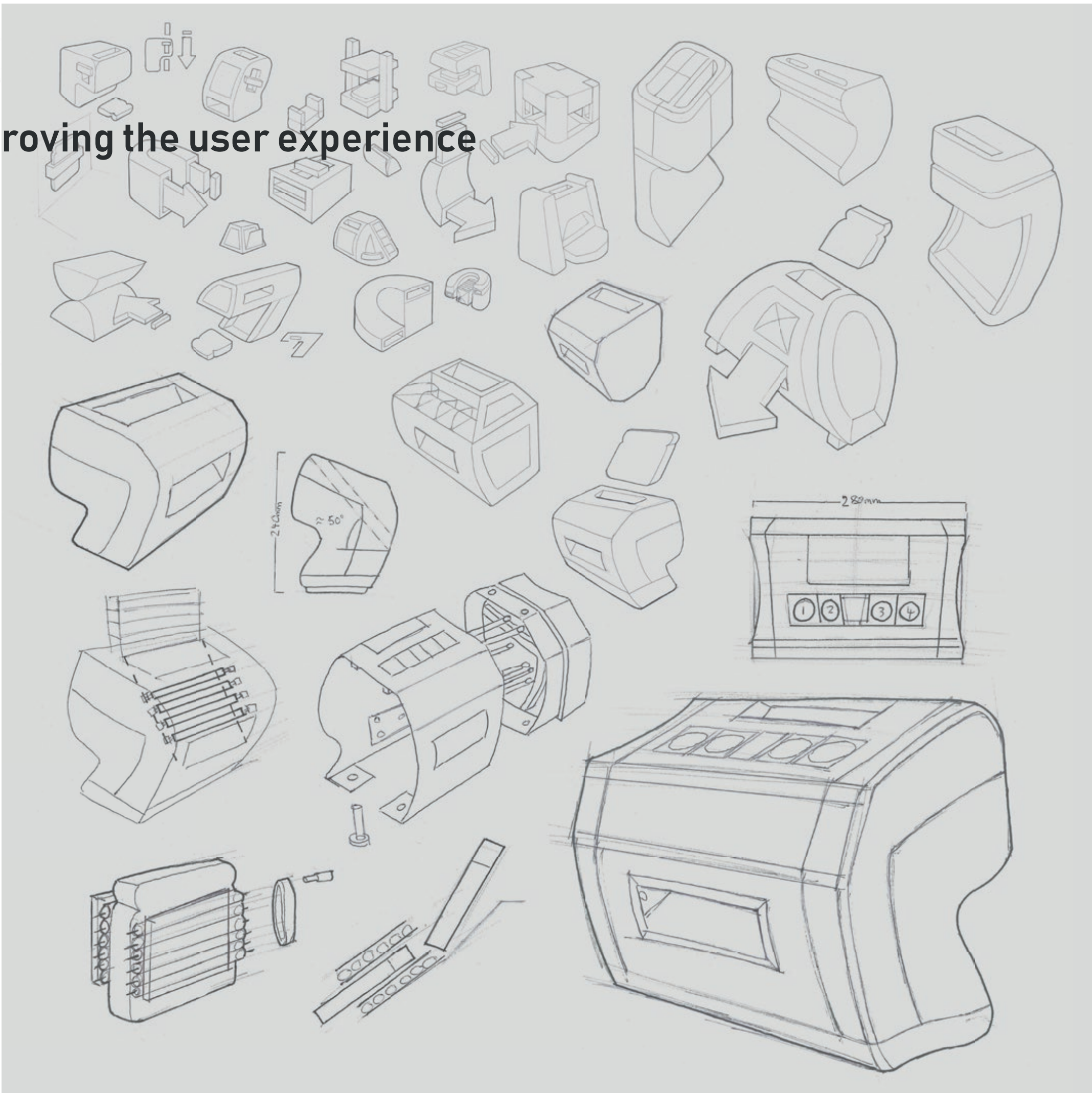
The user has to empty the crumb tray frequently.



END OF LIFE

The product won't get dismantled at the end of its lifecycle for recycling.

improving the user experience



tost

Using heated rollers to heat bread and deliver toast onto a plate.



BUTTONS

Moulded rubber buttons determine the toast level by controlling the speed of the motors.

ROLLERS

Nichrome heated elements inside the ceramic rollers toast the bread.

MOTORS

A motor turns each set of serpentine belts and ceramic rollers, making the bread move through the product.

FASTENERS

Few screws are required as bosses, lips and tabs keep all of the components together, allowing it to be assembled quickly and disassembled very easily for recycling.





bag holder

Injection Mould Project

Designing a mould tool for a giveaway product that promotes a particular brand and is suitable for injection moulding. The project consisted of design development and mould tool manufacture for the chosen product.

Our group chose to manufacture the mould tool for a bag holder to be given away in the supermarket called 'Taste' based in Hong Kong. The product aims to remove discomfort of plastic bags in the hand with a load of shopping.

Aluminium blocks and mild steel inserts were designed and manufactured to create the cavities for the geometry of the bag holder and meet the manufacturing constraints associated with the 2.5D CNC machine. The process involved working as a team to improve the initial mould design, update engineering drawings, machine all of the parts, inject the mould and create an A0 poster with a mass production plan.

2



8 weeks

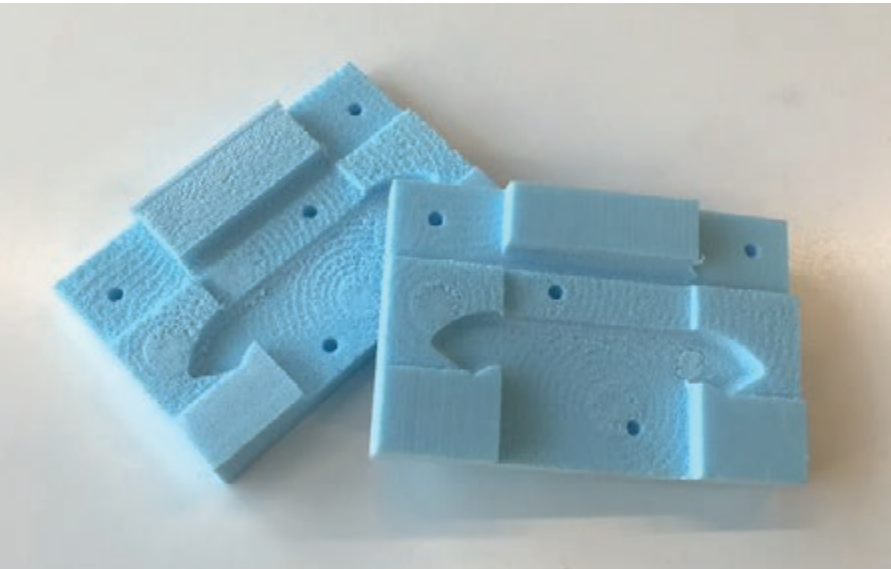


Individual + Group

mould tool

FOAM MODELLING

Simulating the cutting jobs for the mould halves in SolidWorks and testing the code on the CNC machine with blue foam.



TEAMWORK

Assigning tasks to group members and working together to meet deadlines.

Lastly, putting all of the parts together with 4 location pins to inject the mould with low density polyethylene. Appropriate changes were made to some parts to improve the way in which the cavities filled and to enhance the surface finish of the plastic.



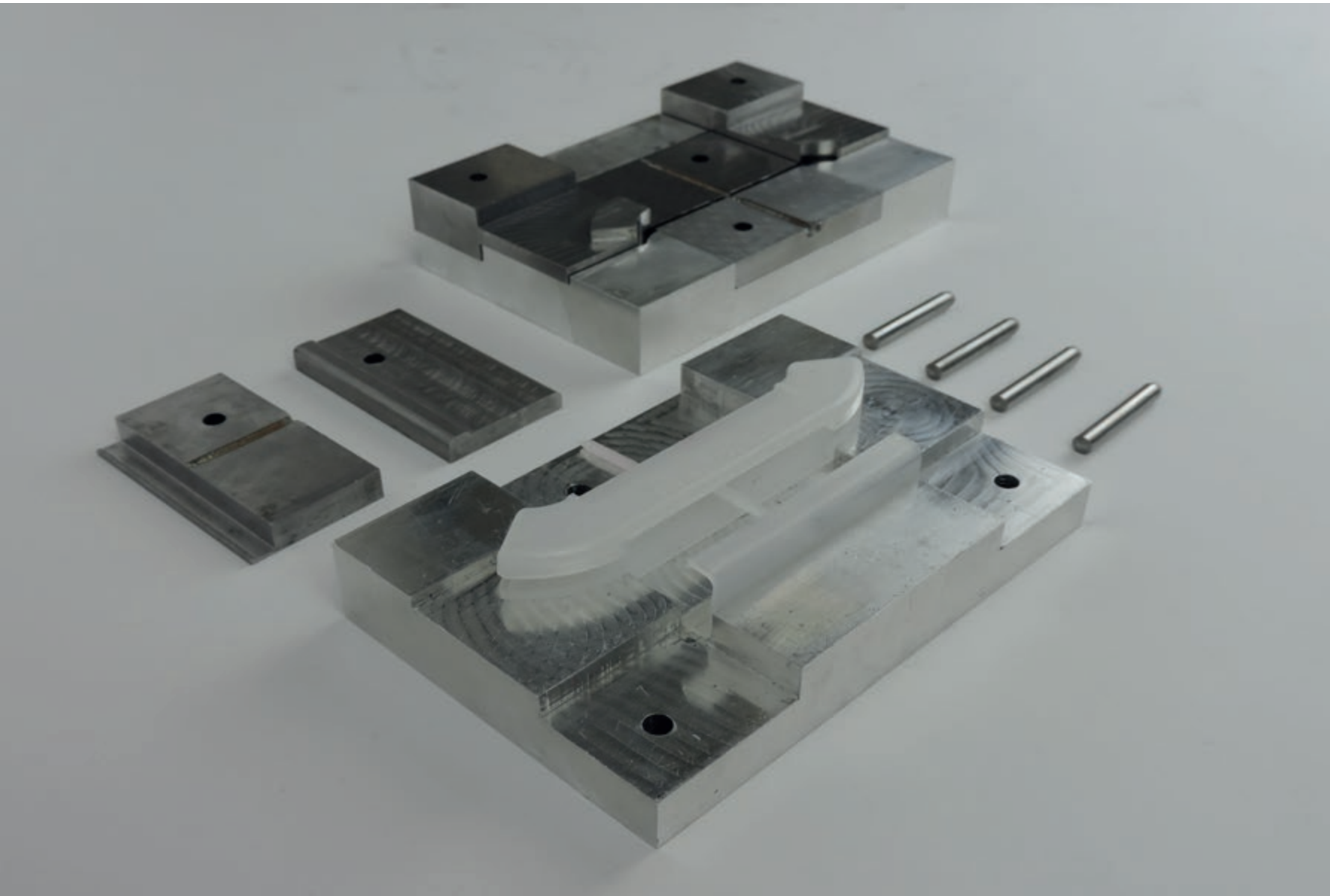
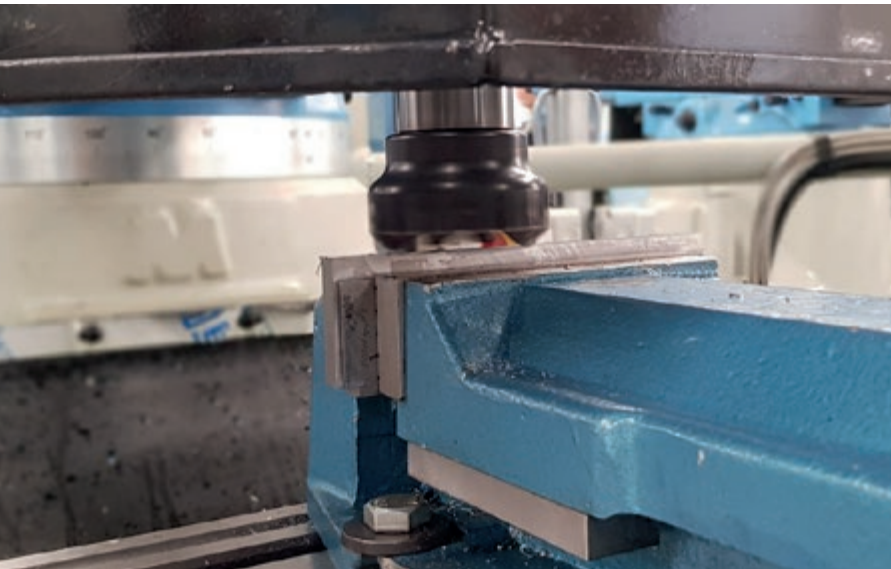
CNC MACHINING

Making changes to the code after machining the foam models and programming the CNC machine for the aluminium mould halves and complex mild steel inserts.



MANUAL MACHINING

Machining parts to engineering drawing sizes using milling machines, surface grinders and pillar drills.



scenario

The user fills a heavy load of shopping into their shopping bag ready to carry home. The user places the bag holder into the straps of the bag. The user can now pick up the bag and carry it comfortably.



MASS MANUFACTURE PLAN

A mass manufacture plan was made with a larger mould tool to produce 3 million products in 3 months .

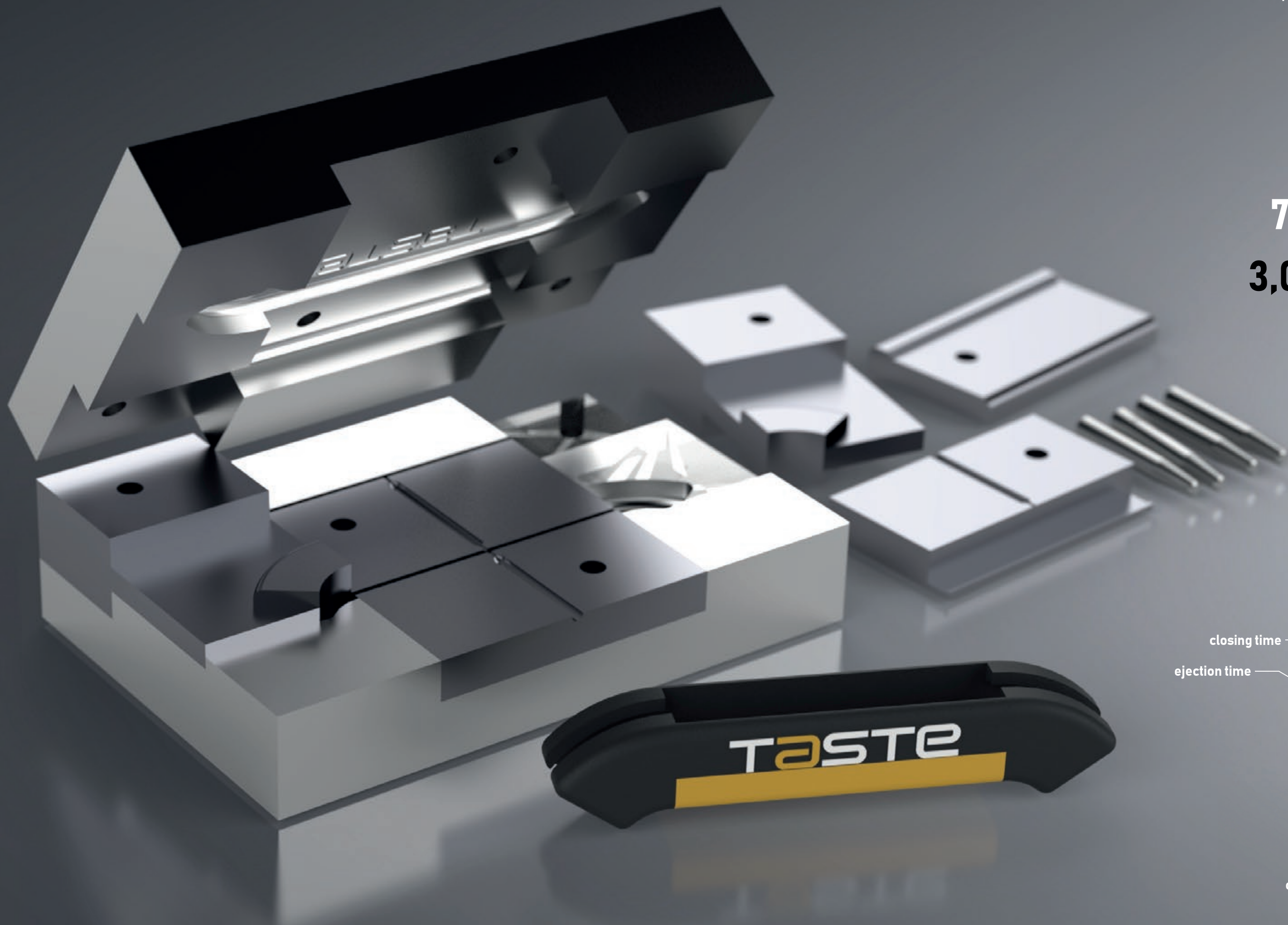
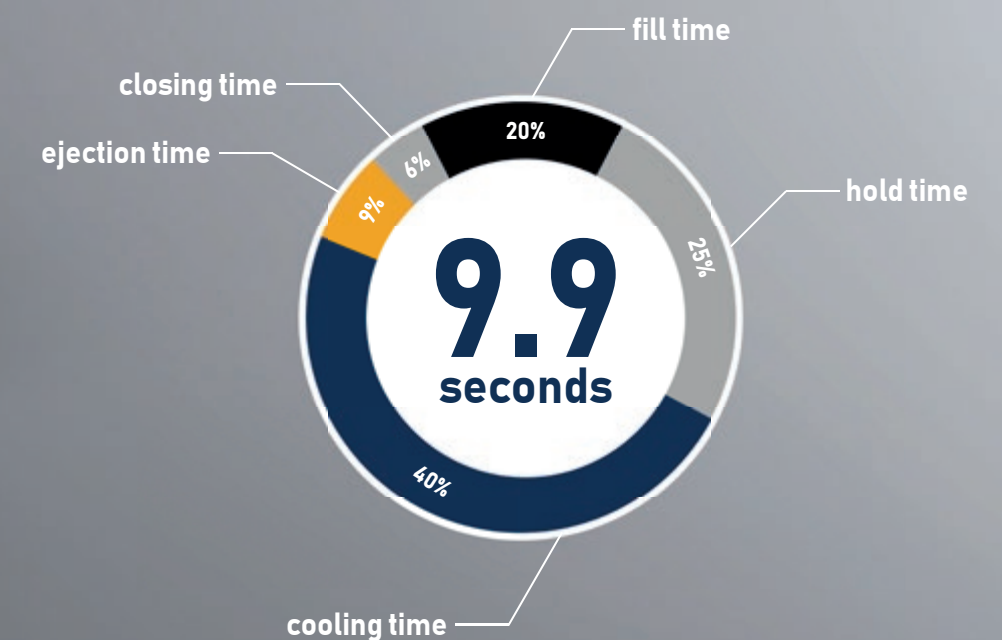
4 products per mould

9.9 seconds per injection

160 manufacturing hours in **1** week

756,368 injections in **13** weeks

3,025,472 products in **3** months





speaker

3

Rugged Speaker Project

Designing a music player with a rugged form that is sufficiently desirable to position towards the upper end of the market with a size restriction of 150mm x 150mm x 300mm.

The visual direction was analysed in terms of silhouettes, surface details, part lines and graphics to inspire sketch development and modelling for my own design. In summary, it was found that rugged looking products exhibit a robust indestructible aesthetic with large chamfers and strong, stable shapes.

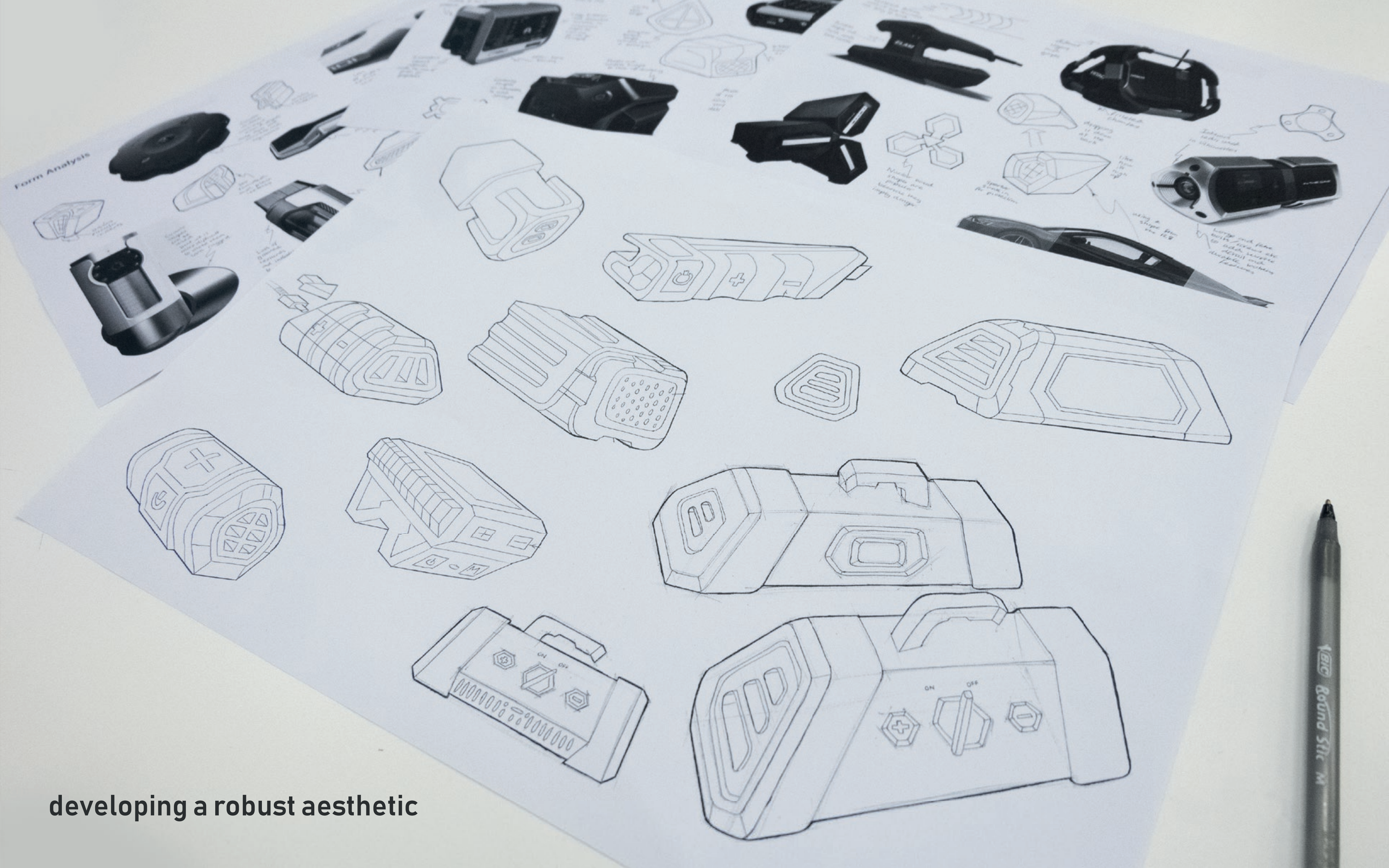
The final outcome was a long hexagonal shape with vents on both ends for the speaker and bass tube components, intended to be used in a workshop / building site environment.



6 weeks



Individual



developing a robust aesthetic

modelling



CAD MODELLING

Using SolidWorks to refine ideas, position internal components and render the final design.



FOAM MODELLING

Bringing ideas to life with blue foam in the workshop using bandsaw and sanding techniques.

user testing

Gathering useful information from peers for potential improvements.

The feedback I received was that the handle should increase in size in order to improve the ease of use and ergonomics of the product.



laundry app

Research Project

Exploring design opportunities for reducing resource consumption of clothes washing while enhancing the user experience for a well-defined user group.

Group data collection was carried out on students and the data was analysed using affinity diagrams to create a design opportunity.

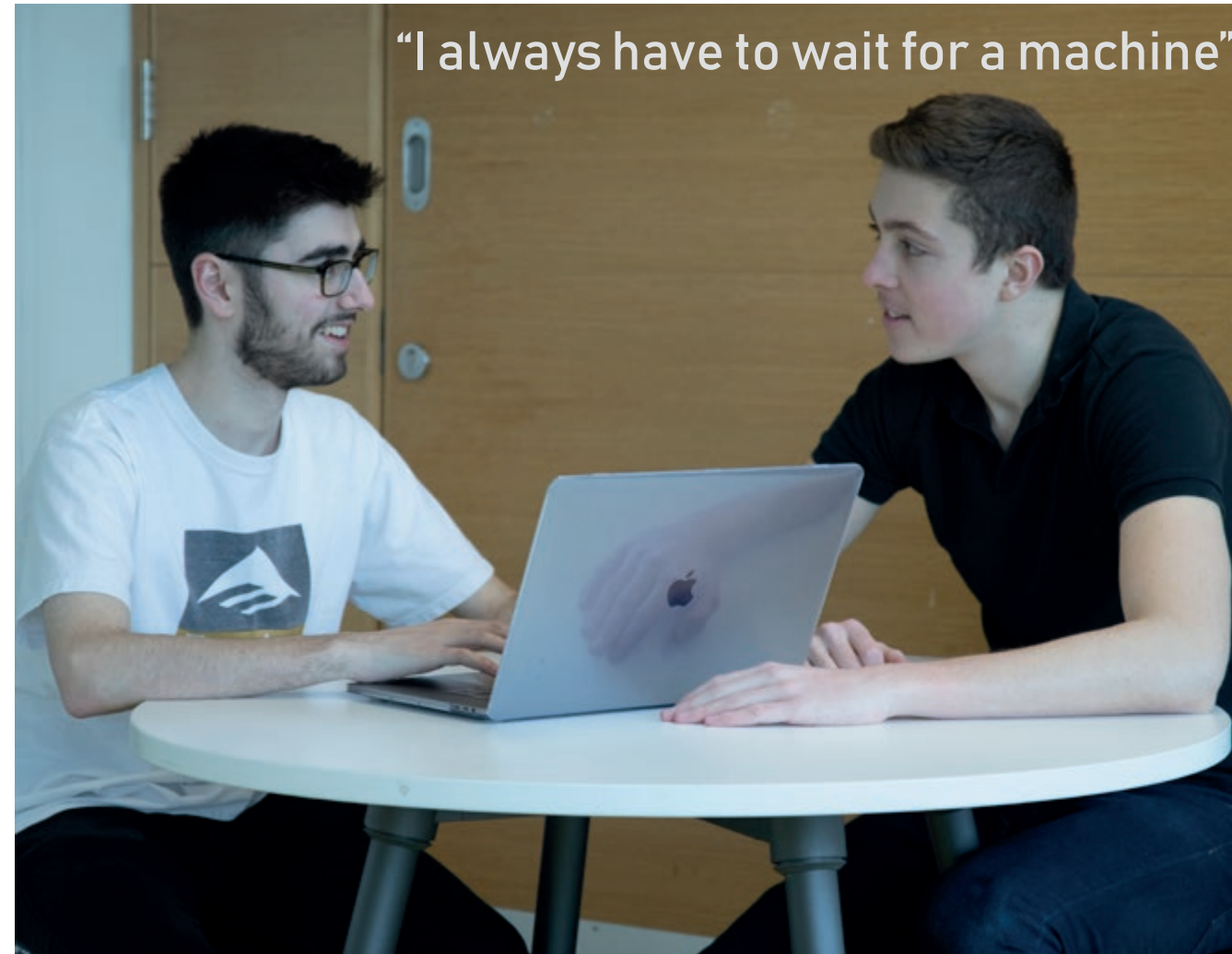
The final outcome was a concept for a mobile application feature that would be integrated into the current Loughborough University app called MyLboro. It aims to prevent students from overfilling machines and interfering with each other's clothing in one of the laundry facilities on campus, as these were the biggest pain points found during our data collection.

4

🕒 11 weeks

👥 Group

methodology



Gathering useful insights directly from our target audience to learn more about the user experience and the problems that users faced.

Capturing the underlying behaviours and emotions users have during the laundry process through observations.

Grouping key problems gathered from the data collection and making links between points to create a design opportunity statement.

Generating a range of features as solutions to the key problems and designing the app interface with wireframes.



user testing

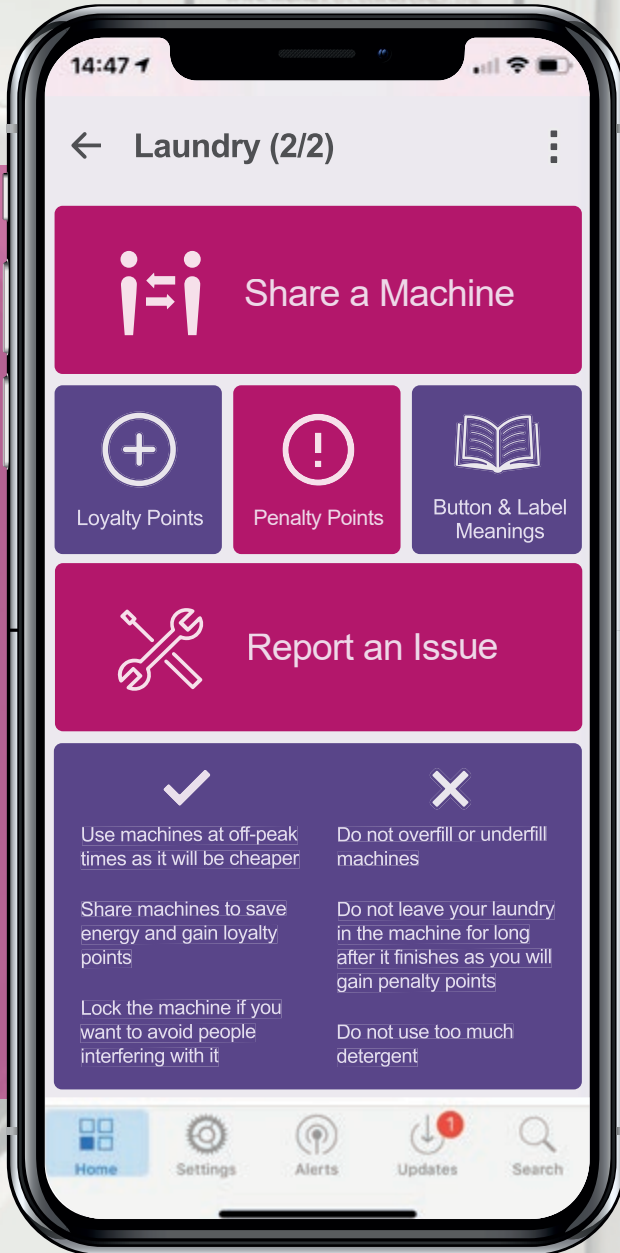
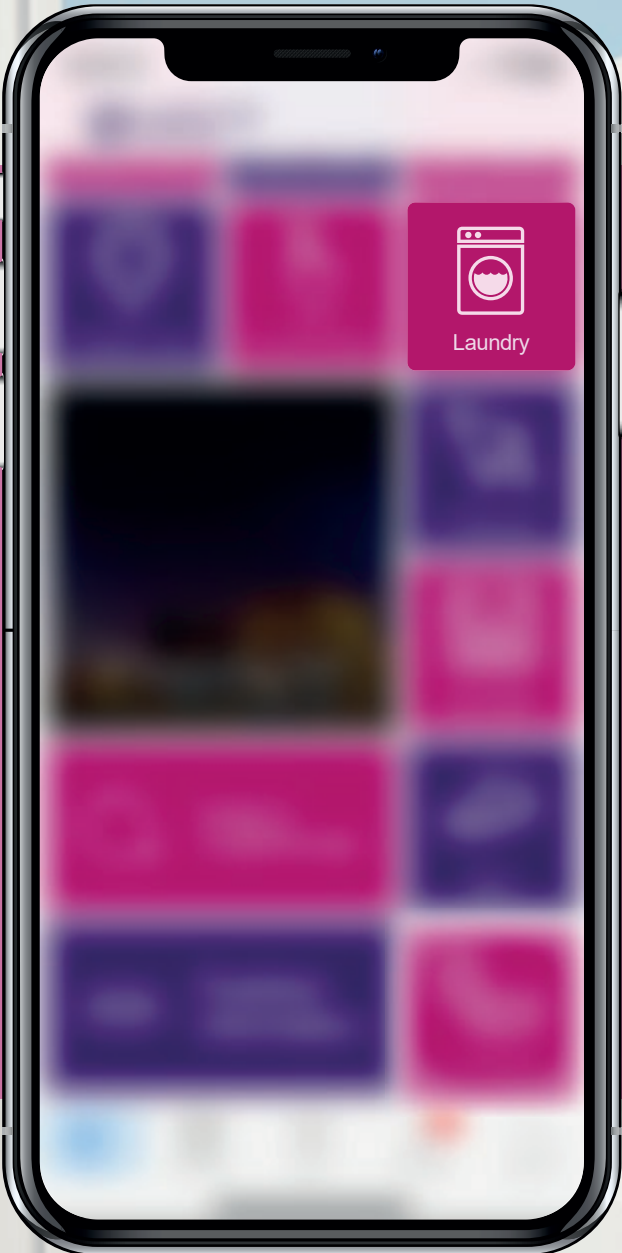


Testing the interface and layout of my app design with the user in the laundry room was important to receive feedback so that changes could be made to the final screens.

myLboro Laundry Feature

An additional feature to the current Loughborough University mobile application for laundry.

Prevents students from overfilling machines and interfering with each other's clothing, as these were the biggest pain points found during our data collection.





toiletries organiser

Live Hinge Project

Designing a homeware product for student accommodation that must be capable of compact storage and uses a live hinge or hinges. The predominant material was to be polypropylene and the size restriction was 500mm x 500mm x 300mm.

User, task and environment were explored for different concepts and it progressed quickly to development through sketching and modelling. Time management was key to a successful outcome given that the project was to be completed in short time period.

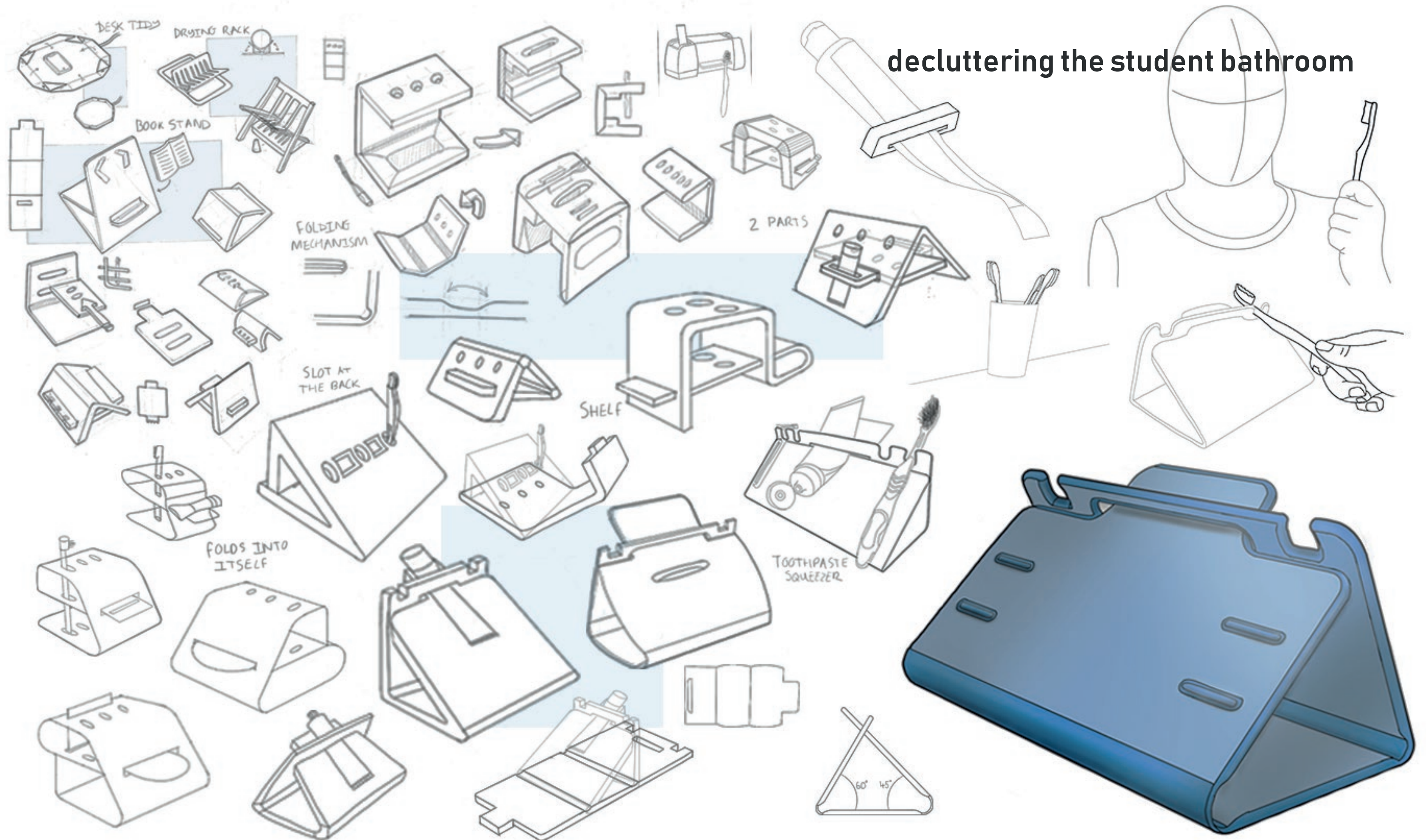
The final outcome was a foldable stand for a student bathroom that would organise everyday bathroom toiletries.

5

🕒 1 week

👤 Individual

decluttering the student bathroom

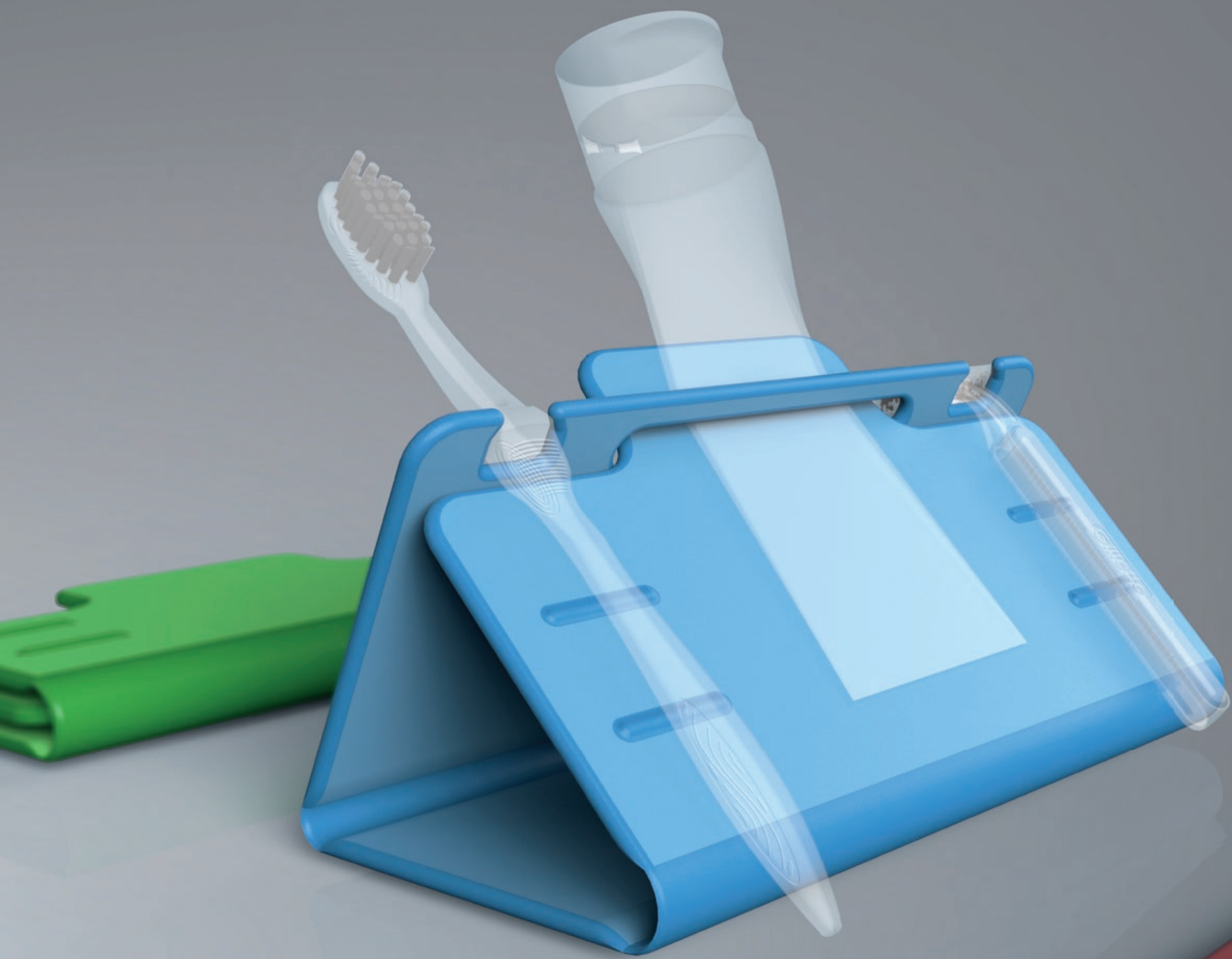


modelling

Using foam board to model the final design and testing the prototype with real life products. The section in the middle acts like a toothpaste squeezer allowing all of the toothpaste to collate at the top of the tube.

flatpack for compact storage





tilt

toiletries organiser

about me

My name is **Alun Hopkins** and I am a 19 year old student studying Product Design and Technology BSc at Loughborough University.

I am currently looking for a 12 month industrial placement during 2019-2020. I am a hardworking individual eager to develop new skills, learn more about design in practice and work both independently and as part of a team.

Software

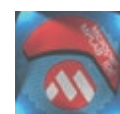
Creating



Rendering



Programming



Editing



Presenting



Digital Sketching



thank you.



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