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Product Designer and 3D Print Lead



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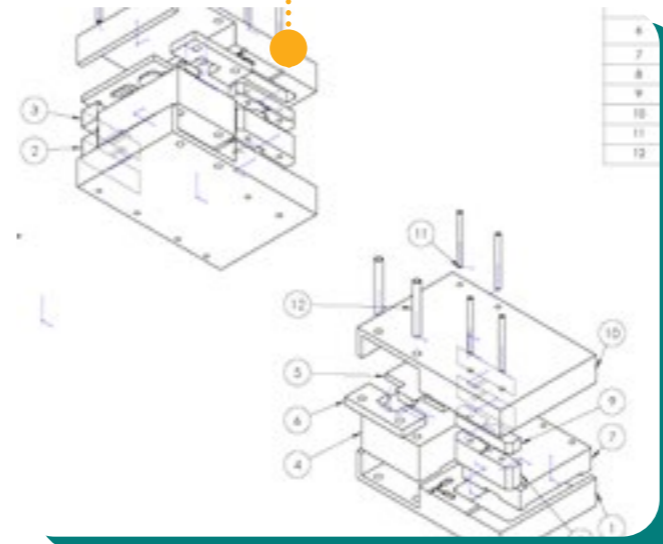
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*Because much of my professional work is protected under strict non-disclosure agreements, my portfolio can only showcase a selection of projects. While I'd love to share the full scope of my contributions, many of the designs, processes, and outcomes I've created are confidential and cannot be publicly displayed. What I can share represents the same level of creativity, and problem-solving I bring to all my work, and I'm always happy to discuss my experience in more detail during a conversation—without compromising any NDA obligations.

Inclusive CPR Manikins

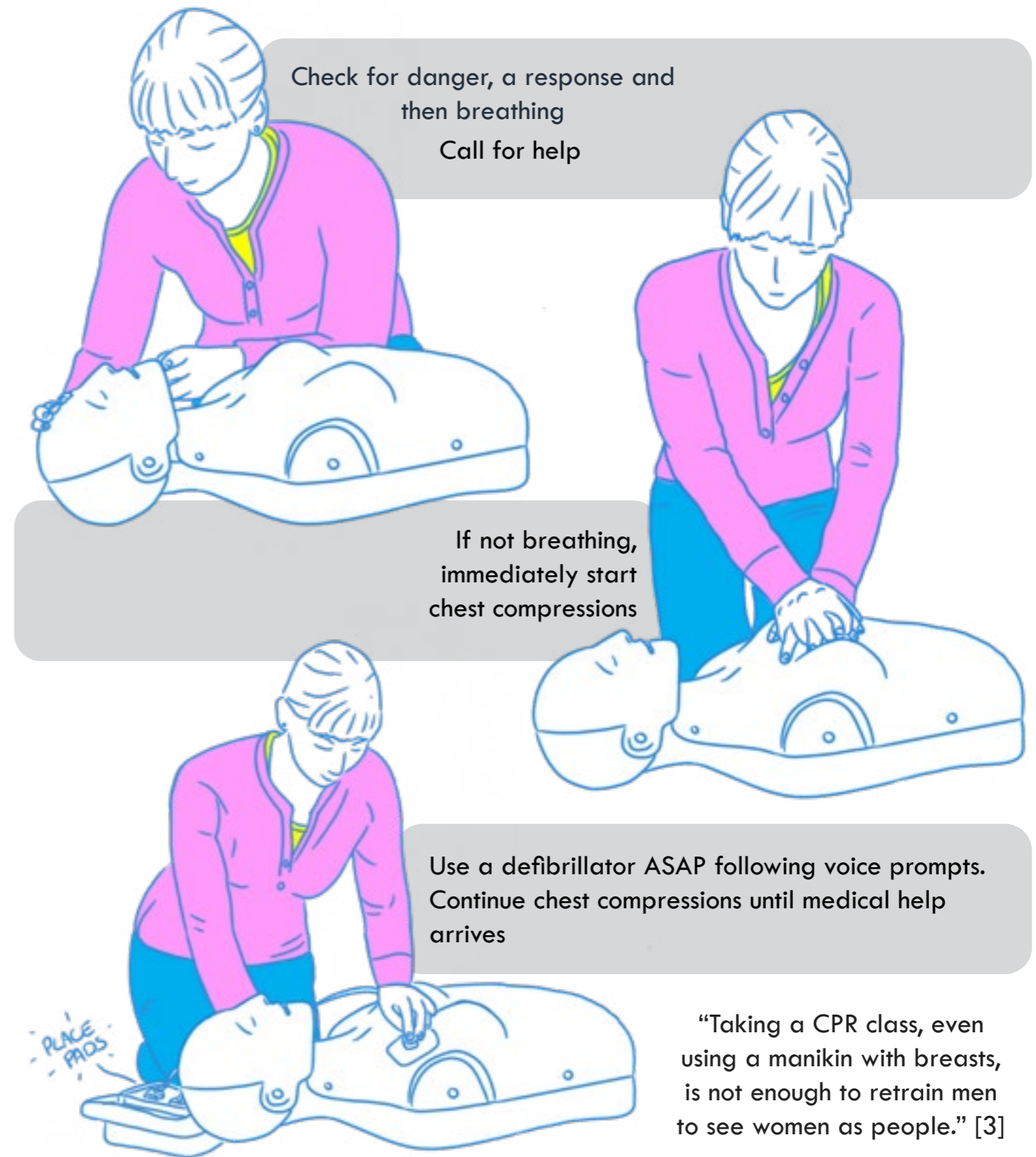
A week long project to design a product that faces a gender bias within design to make it more inclusive and help drive inclusivity. The functional need was found within the medical market of first aid training, CPR and AED manikins are not representative of majority of the populations anatomy and therefore the first aid trained are not prepared to actually do life saving techniques on all of the population.

“Women are 27% less likely than men to receive CPR from bystanders in public and the median age of cardiac arrest was 71 years [1]”



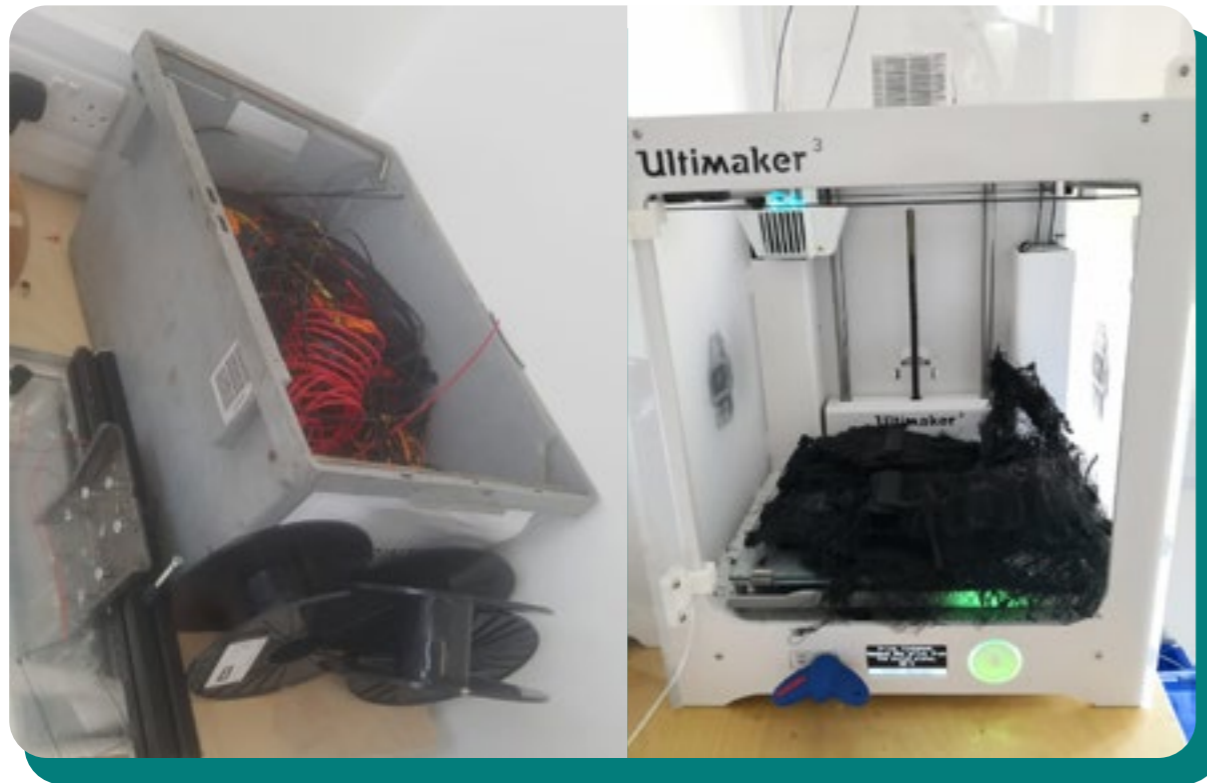
The existing market of manikins are all young thin male** bodies. This is not representative and does not give people training genuine experience of saving lives. Although chances of sudden cardiac arrest are equal between sexes, due to social cultural norms about exposing female** breasts this reduces peoples likeliness of doing CPR on females. This is due to the lack of patient simulators that model realistic female physiques [2]. Realistic female patient simulators are needed [2].

“The sexualisation of breasts and the taboos around them are often dangerous in the case of bystander CPR withheld by fearful men, it can cost women their lives.”[3]



** When referring to 'Male' or 'Female' it refers to the biological differences between males and females, such as the genitalia and genetic differences. Gender identity and your biological sex are different, however neither should affect your likelihood of receiving life saving first aid.
 [1] Adielsson et al, 2011. Increase in survival and bystander CPR in out-of-hospital shockable arrhythmia: bystander CPR and female gender are predictors of improved outcome. Experiences from Sweden in an 18-year perspective. Heart, 97(17), pp.1391-1396. [2] Kramer et al, 2015. Does the sex of a simulated patient affect CPR?. Resuscitation, 86, pp.82-87. [3] Lady Science. 2021. No, an ad agency did not invent the world's first CPR manikin with breasts [online] Available at: <<https://www.ladyscience.com/commentary/ad-agency-did-not-invent-cpr-manikin-with-breasts>> [4] Stanley et al, "Recreating the feel of the human chest in a CPR manikin via programmable pneumatic damping," 2012 IEEE Haptics Symposium (HAPTICS), Vancouver, BC, 2012, pp. 37-44,

3D Print Waste Recycling



For my Final Year Design Project at Loughborough University, I began with the problem that there are no widely available FDM 3D print recycling options. The waste builds up and majority of the time it gets sent to landfill even if there is the possibility of recycling it down to reuse as new filament. The problem was studied in detail and a solution for 3D print farms was created.

“Gartner suggests that there will be 6.7 million 3D printers sold by the year 2020. Assuming a conservative view that only 50% of that quantity will be achieved, this would still equate to more than 80 million kilograms of plastic filament needed to sustain the market.

Taking a lower percentile average of 10% waste per 3D printer, we can aggregate this with 3D printer filament usage (kg) to calculate a 3D printing waste volume of 8 million kilograms (2020). Certainly minuscule compared to overall plastic waste, but significant nonetheless.”

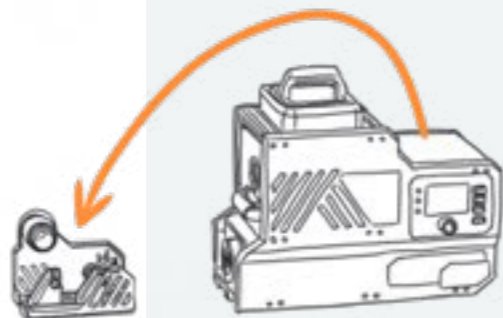
- Filamentive <https://www.filamentive.com/the-3d-printing-waste-problem/>

1



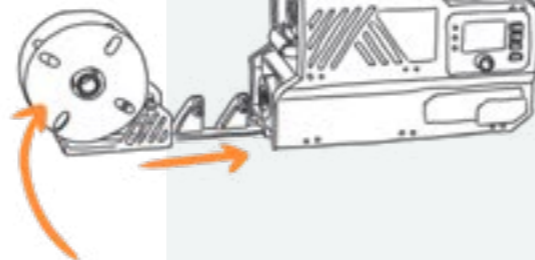
Turn on, adjust settings using control panel and pre-heat heaters.

2



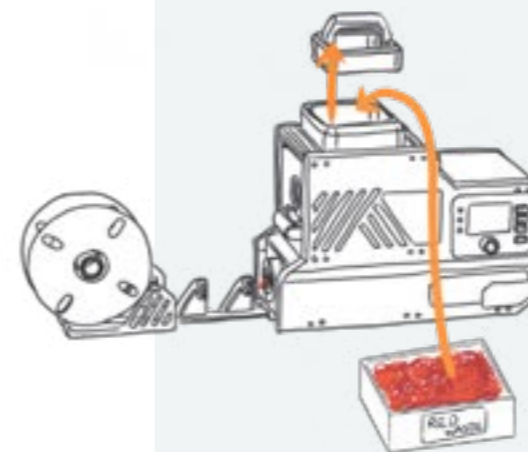
Move spooling base from stored position.

3



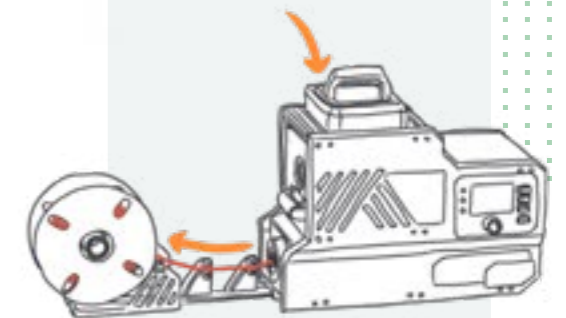
Add empty reel and click spooling base into place. Wait for LEDs to show the heaters are ready.

4



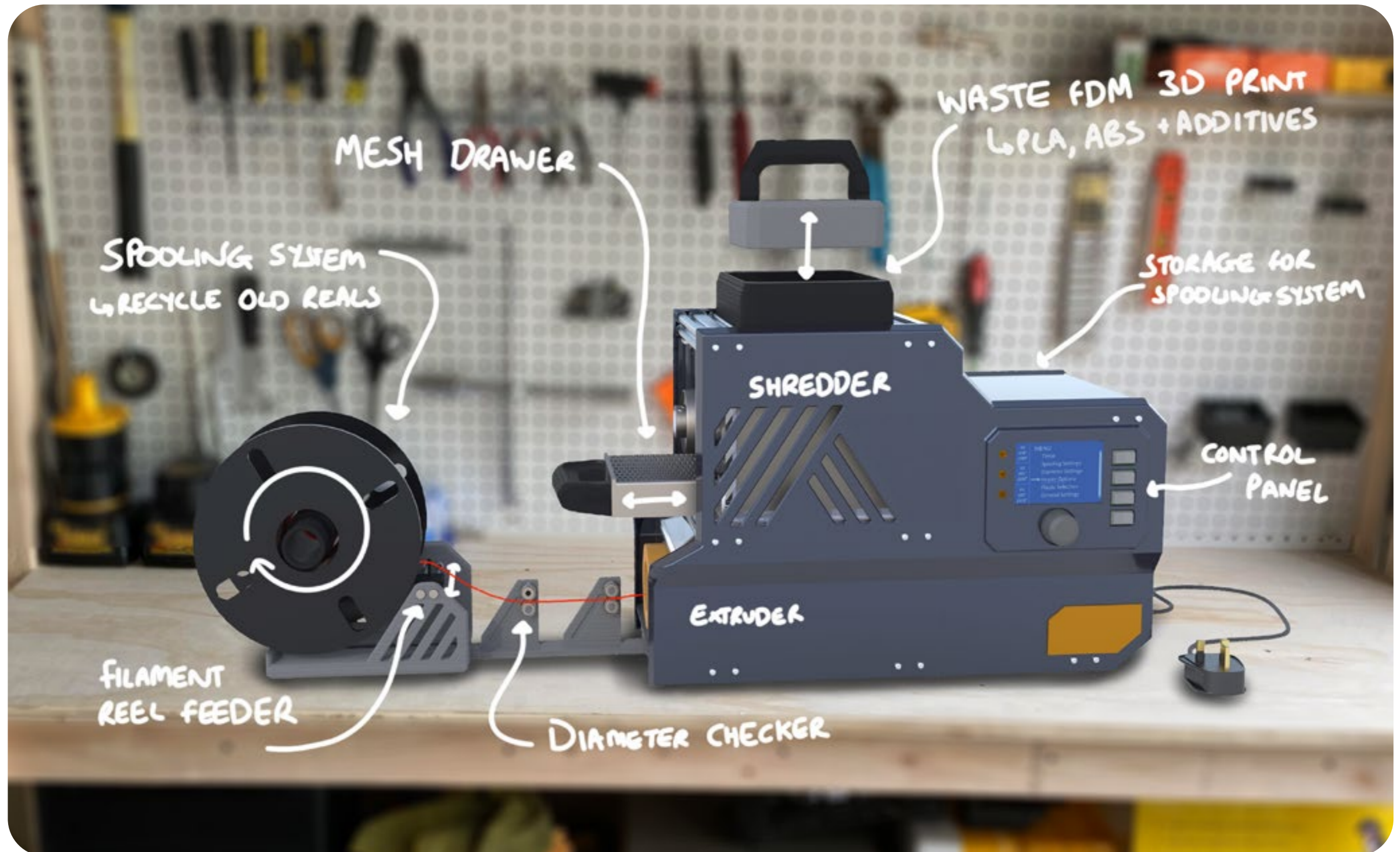
Lift lid and place in waste plastic. Turn extruder on with the spooling motor.

5

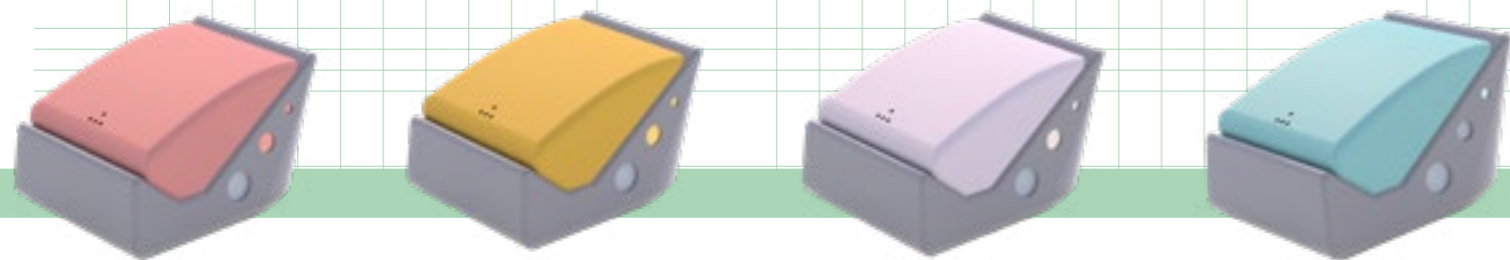
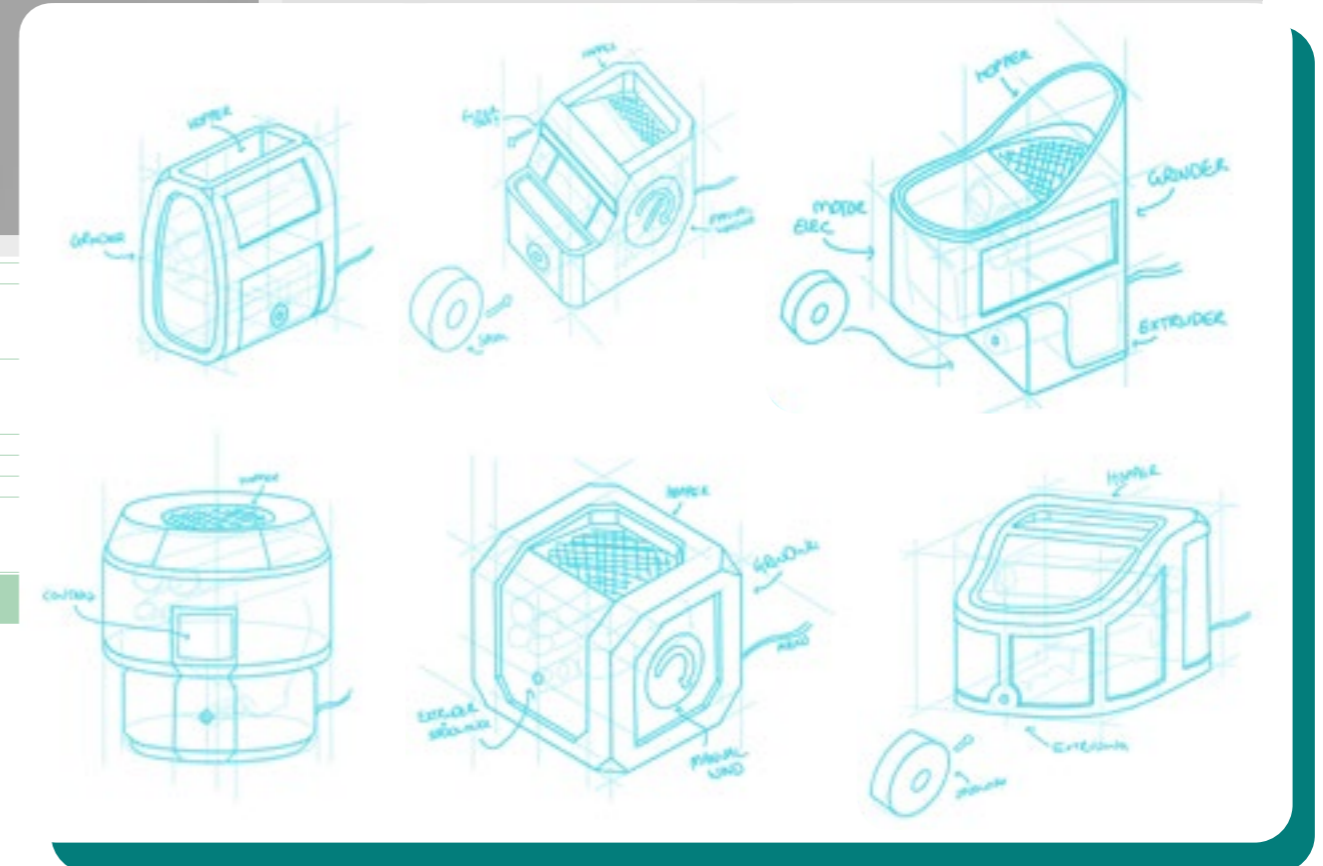
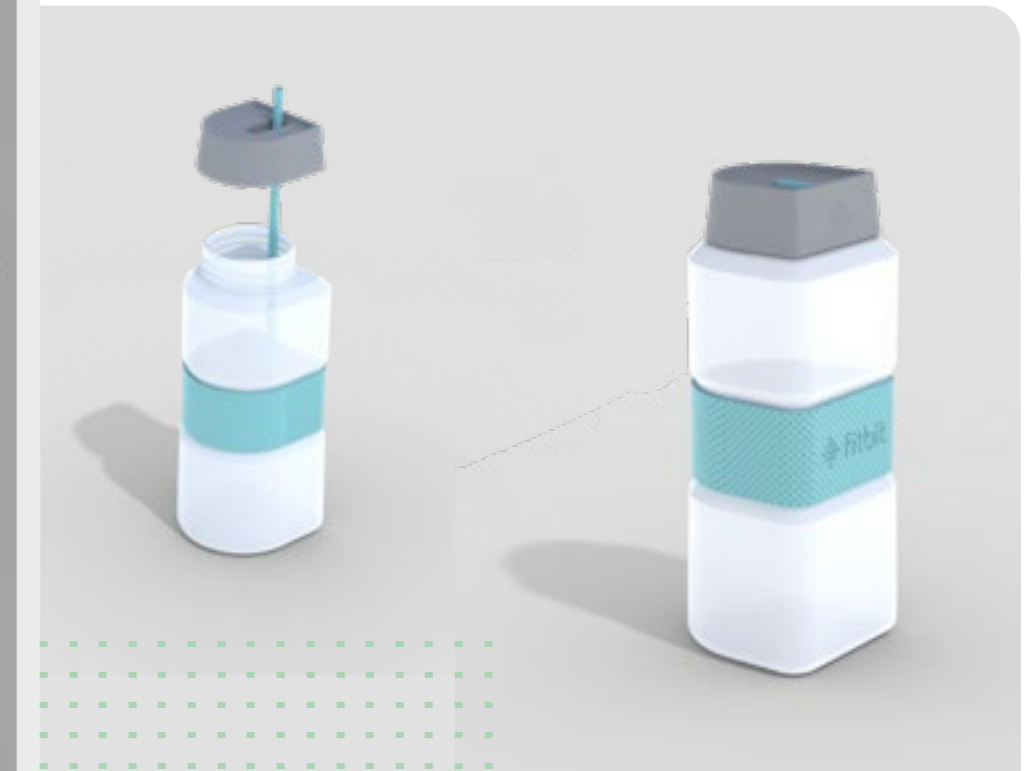
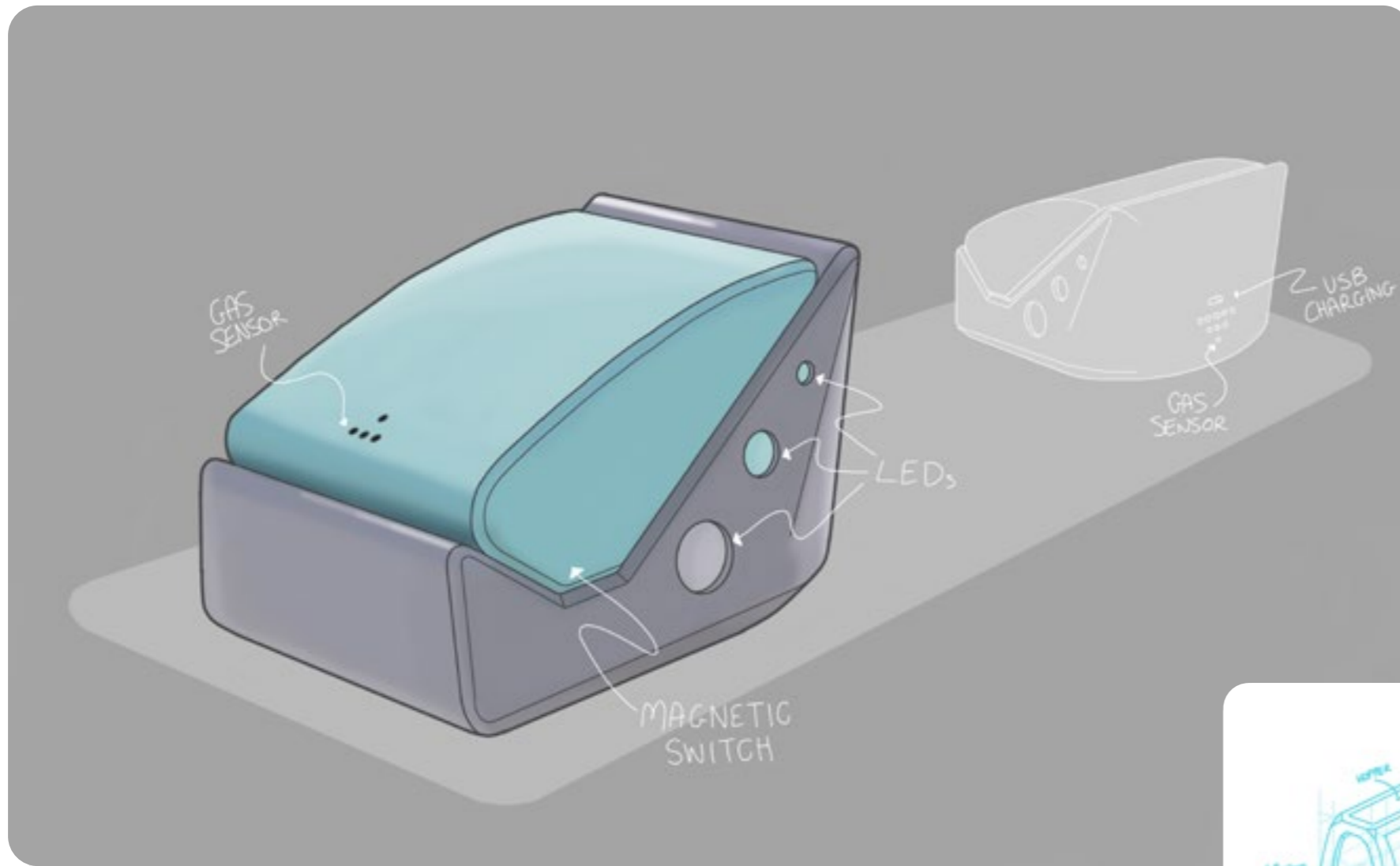


Push plastic down into the shredder using the lid. As filament starts to come out slowly guide it through the course and attach to spool.

3D Print Waste Recycling

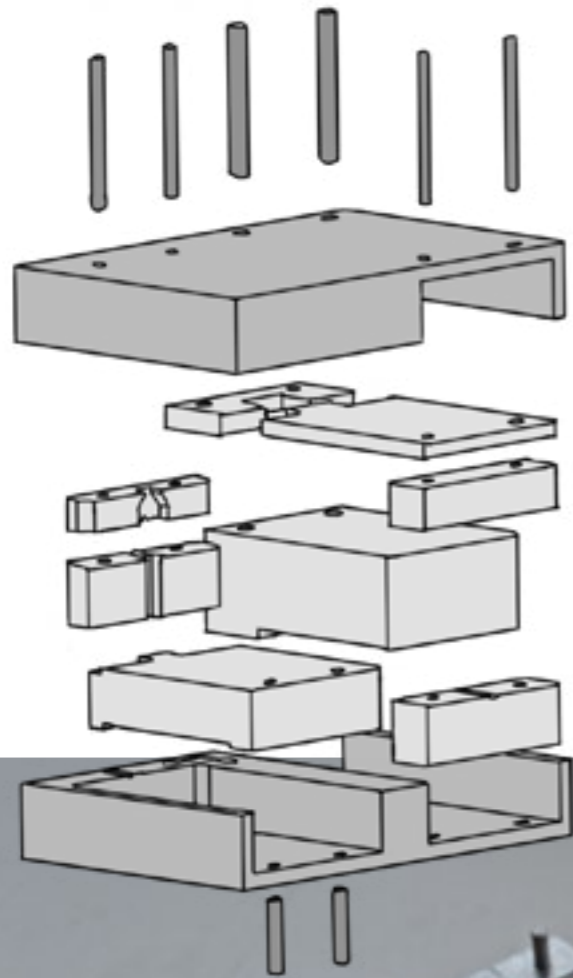


Product Sketches & Renders

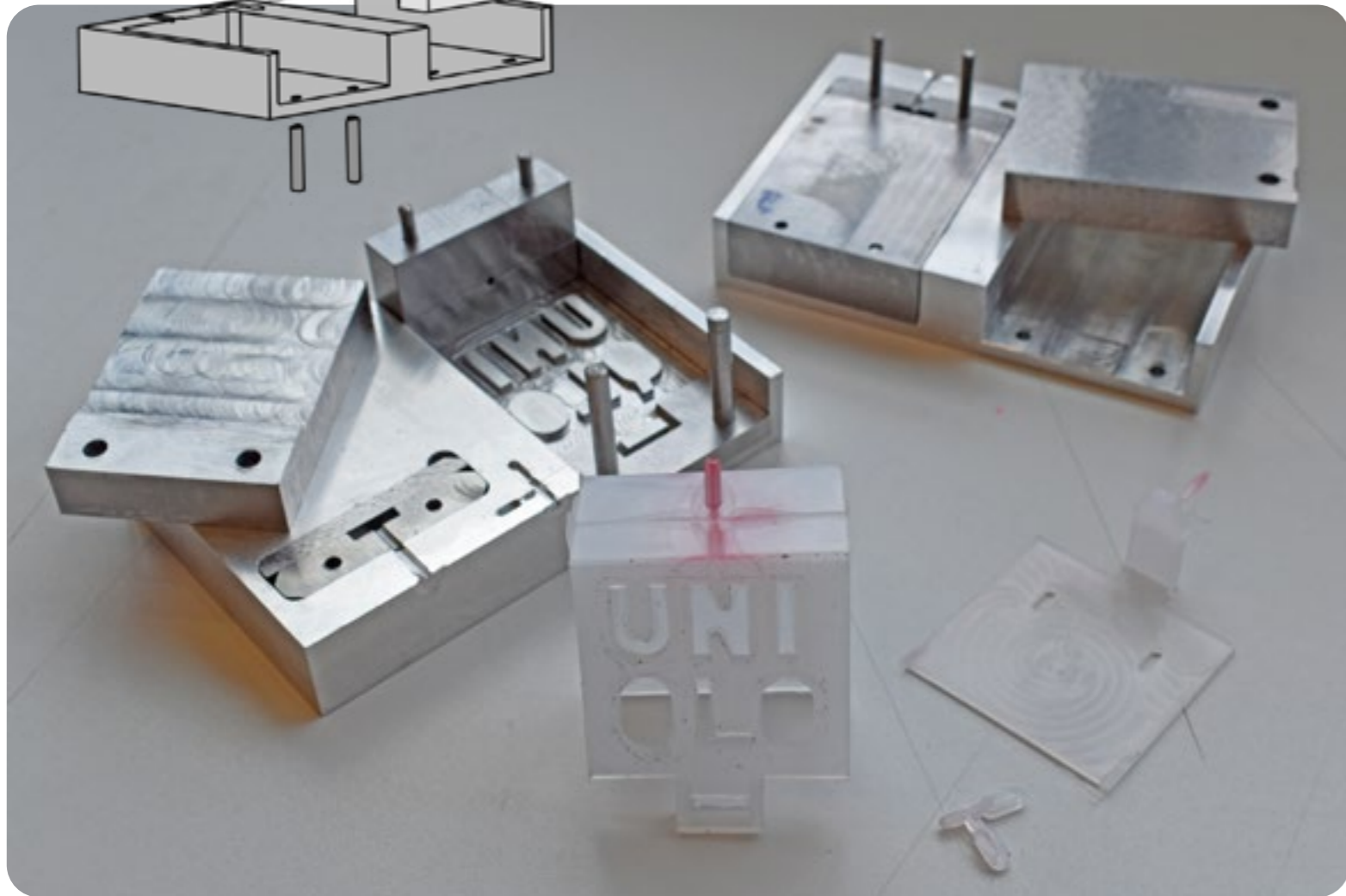
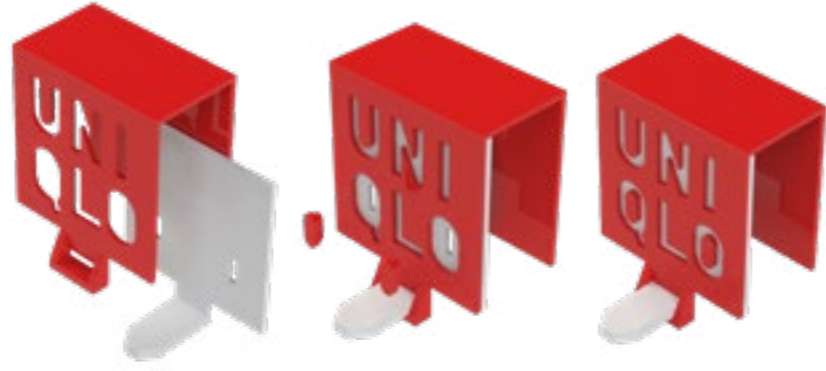


Some sketches and renders from various projects, such as designing for a brand and its design language, ideation sketches for 3D print waste recycling and Internet of Things concepts.

Injection Moulded Coat Hook



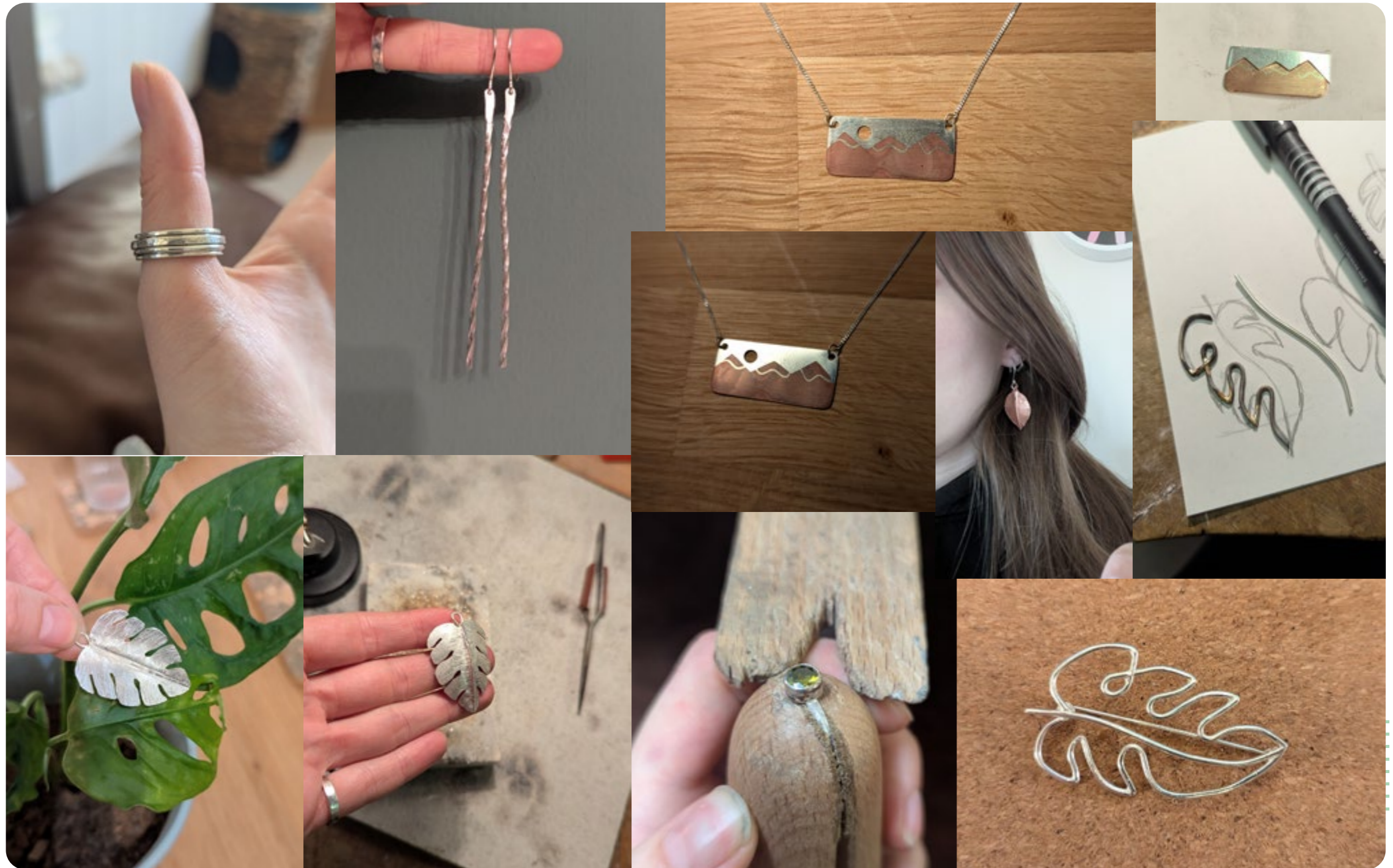
A project to create an injection moulded widget for a company and its brand.



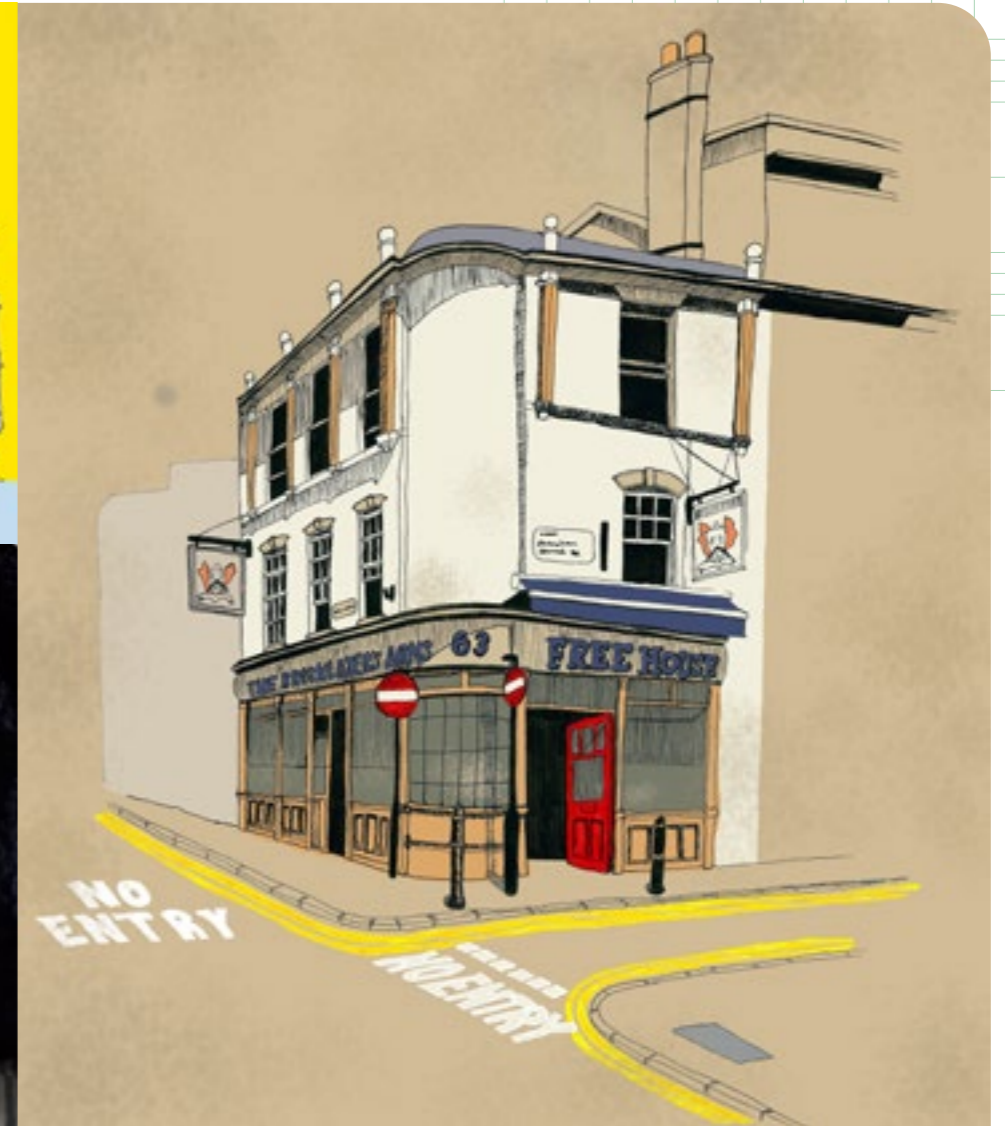
Niftylift Public Events



Personal Jewellery Projects



Artwork



Thank You

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