PORTFOLIO

D’ARCY HODGSON

INDUSTRIAL DESIGNER

SELECTED WORKS

I’m D’Arcy

Bachelor of Design (industrial design) at
Queensland University of Technology.
Graduating December 2025.

CREATIVE BACKGROUND

Creativity has defined my life for as long as I can remember. I grew up in a family of musicians, but visual arts was always my strength. I spent my childhood and teenage years drawing, painting, and building scale model aircraft and tanks. These were precursors to my current obsession with 3D printing, prop making, animation, and science-fiction writing.

DESIGN AND I

When I was 13 I amassed 50,000 Instagram followers expressing my interest in graphic design. I was soon sharing goalkeeper glove designs with design industry professionals and users, including world cup winning goalkeeper Iker Casillas. Later, a high school mentor introduced me to Industrial Design through a snare drum build program. For my final project I designed a multifunctional desk which continues to solve my storage and lightbox needs. I topped the subject, and the awesome potential of design thinking as a problem solving tool became apparent to me.

SOFTWARE PROFICIENCY

Experience

BMW Group Logistics Innovation and Robotics

Industrial Design Intern
Munich, Bavaria, Germany
October 2024 to April 2025 (six months, full-time)

- Gained international industry experience working within globally structured corporate heirarchy in a highly innovative department.
- Produced a high-quality animation using Blender, NVIDIA Omniverse, and Adobe suite.
- Built skills in advanced animation pipelines, real-time rendering, and factory simulation.
- Currently able to converse in German at a A2.1 level.

Evolve Group

Industrial Design Intern
Logan, Queensland, Australia.
April 2024 to July 2024 (2 days per week)

- Designed plastic products from concept to production using SolidWorks, with a focus on design for manufacture.
- Gained hands-on experience with manufacturing machinery and processes, learning directly on-site from industry experts.
- Created a high quality animated render of an injection moulding tool.

HAL Architects

Archivist
Brisbane, Queensland, Australia
2023 (Casual)

- Created a digital archive of architectural projects spanning the firms 25 year history.
- Exposure to client-facing processes and procedures within the design industry.

Project Index

01

02

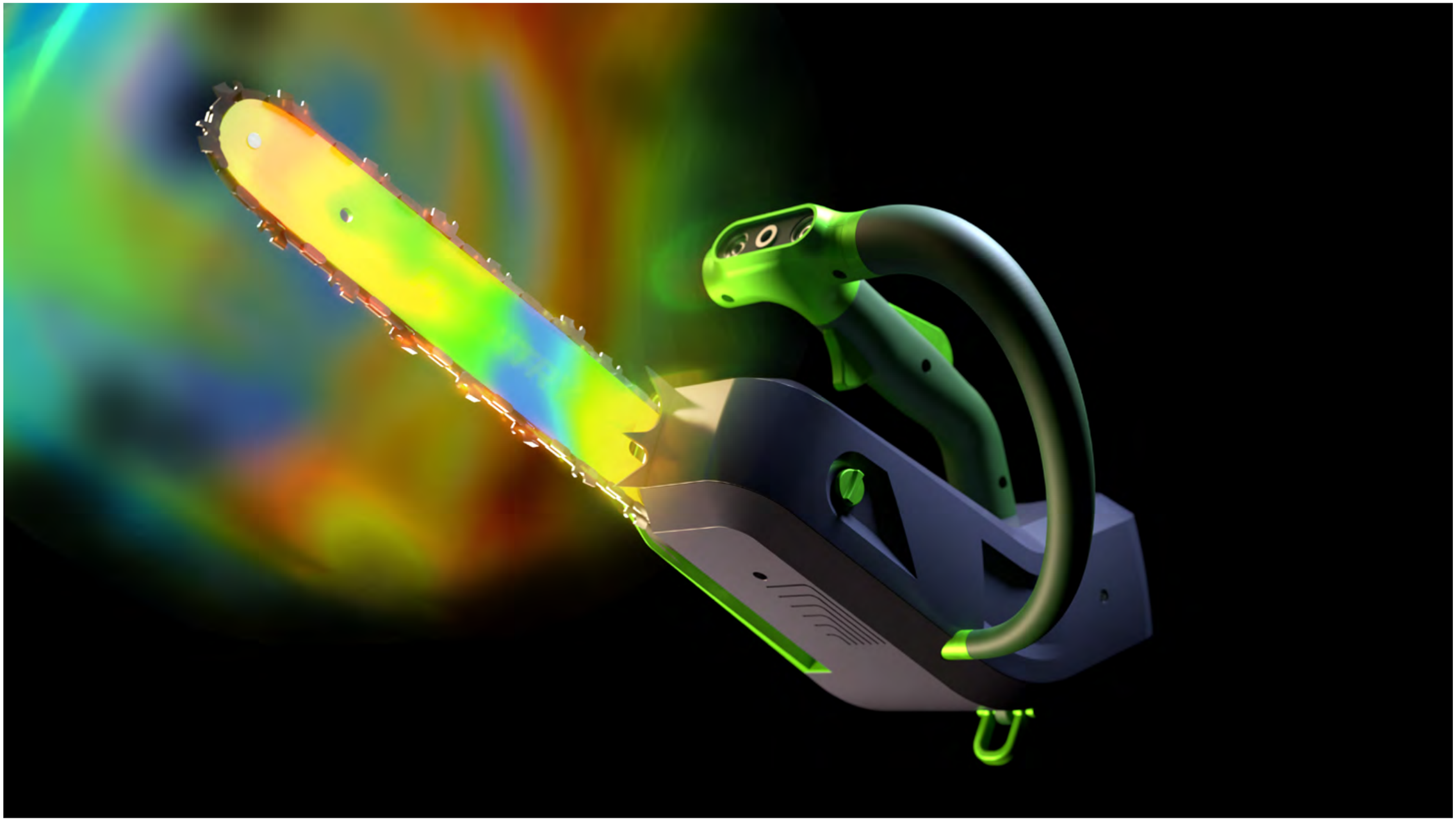
03

04

01

ASENTRY ARBORIST CHAINSAW

August-October 2025



Concept

PROBLEM

Typical products on the market fail to protect users in the real-world scenarios of canopy work. Unwritten rules of use evolve beyond the guidelines of user manuals, as arborists continually balance productivity with safety in individual ways. The chainsaw market is yet to embrace advanced monitoring technologies, choosing to continue the use of dated safety systems such as the kickback brake.

SOLUTION

Where existing chainsaws avoid engaging with these usage patterns, ASENTRY embraces them. Five integrated safety systems work in unison to create a robust, intelligent safety net which protects the user. The product plays an active role in safety, rather than requiring the user to adapt to the limited capabilities of the product.

SAFETY FEATURES

A controlled electromagnetic field (CEMF) is dispersed through the bar to measure conductivity in a 25cm radius. For protection where visual sensors fail.

The load cell assembly monitors if the left hand is on the tool. ASENTRY supports this common behaviour.

The infrared camera module helps assess false positives in the CEMF system, as well as providing light for night work.

The deadman switch assembly ensures the trigger cannot be pressed unless used in sequence.

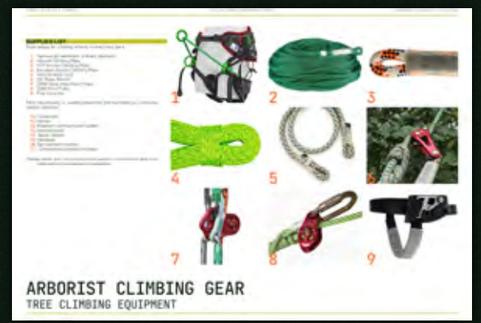
An Arduino Nano running TinyML interprets motion data, actively tracking the tools position in space.

Design Process

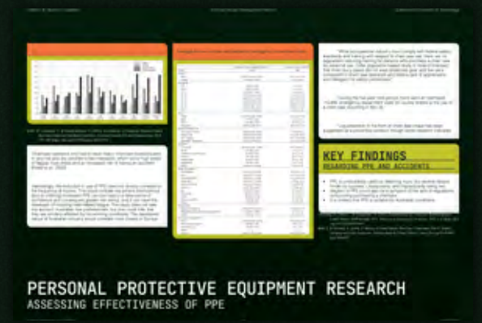
1 Research Ideate Iterate Deliver

USER DEMOGRAPHICS RESEARCH
UNPACKING KEY USER GROUPS

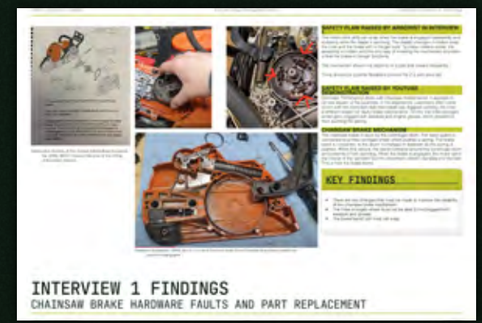
MARKET RESEARCH
INDUSTRY STANDARD CHAINSAW PERSONAL PROTECTIVE EQUIPMENT



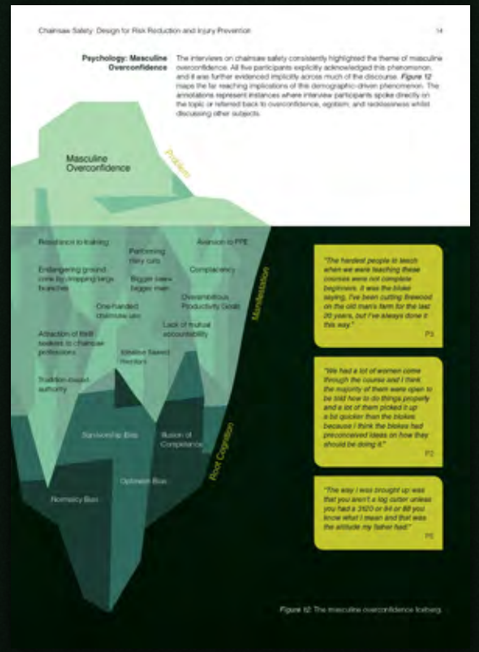
ARBORIST CLIMBING GEAR
TREE CLIMBING EQUIPMENT

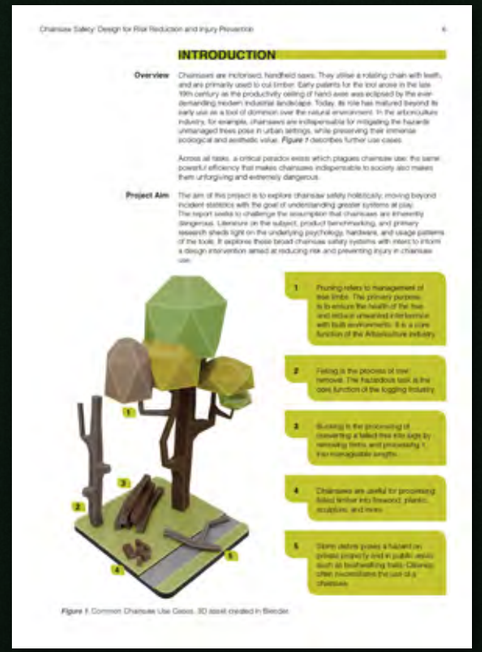


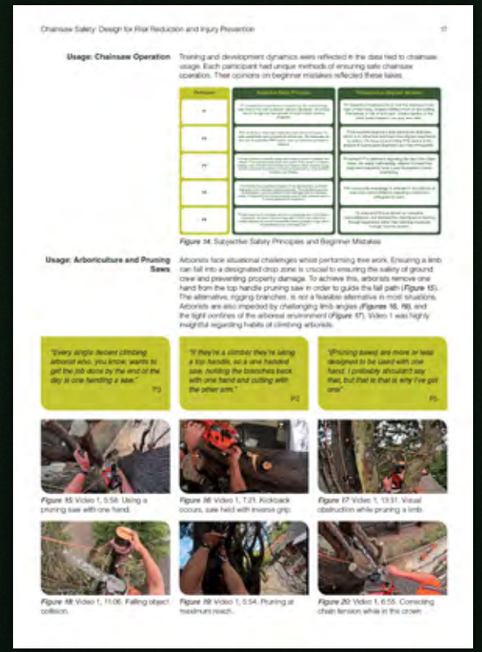
PERSONAL PROTECTIVE EQUIPMENT RESEARCH
ASSESSING EFFECTIVENESS OF PPE

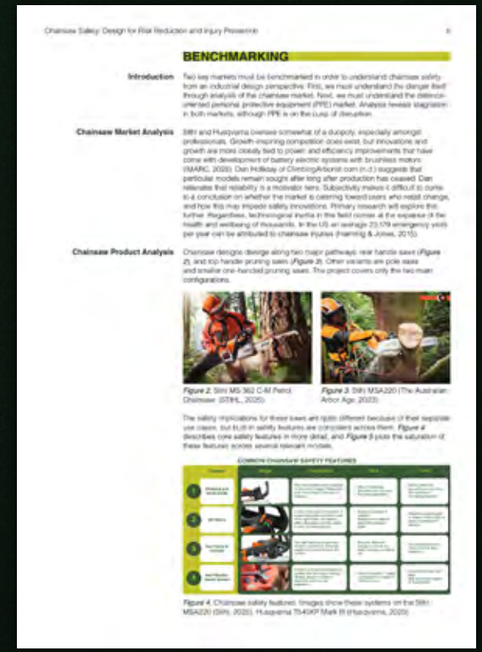


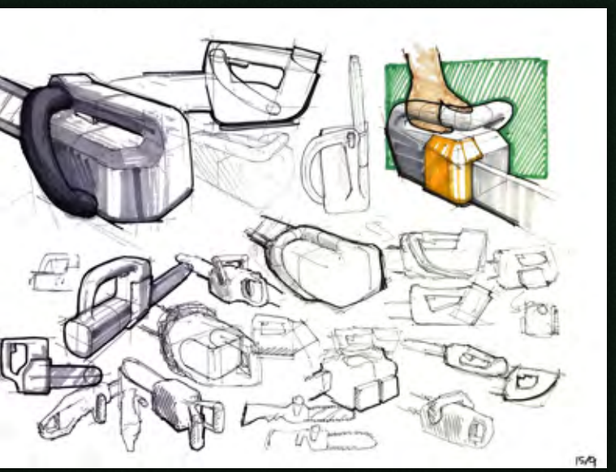
INTERVIEW 1 FINDINGS
CHAINSAW BRAKE HARDWARE FAULTS AND PART REPLACEMENT

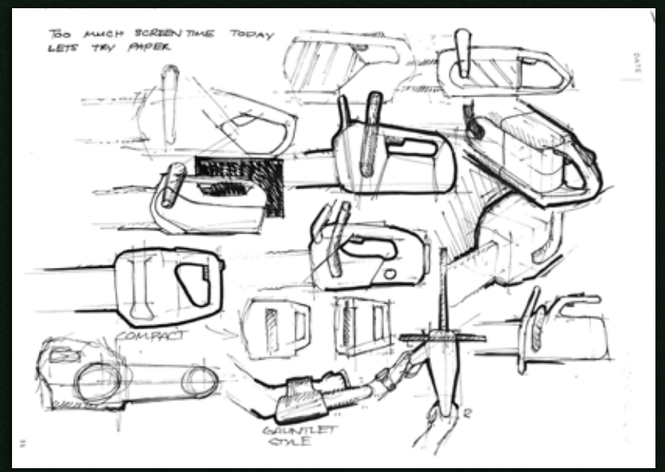


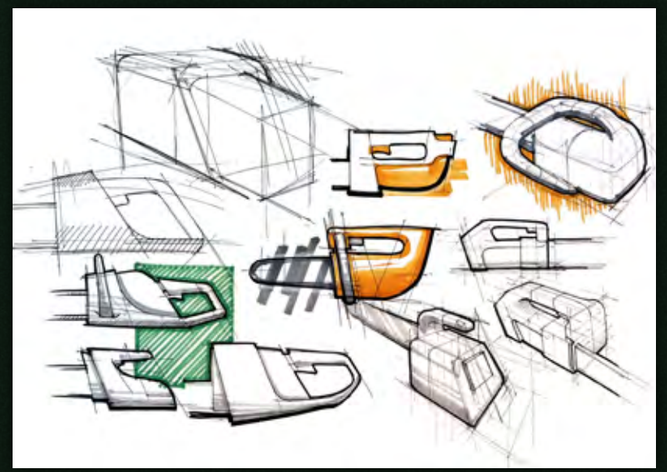




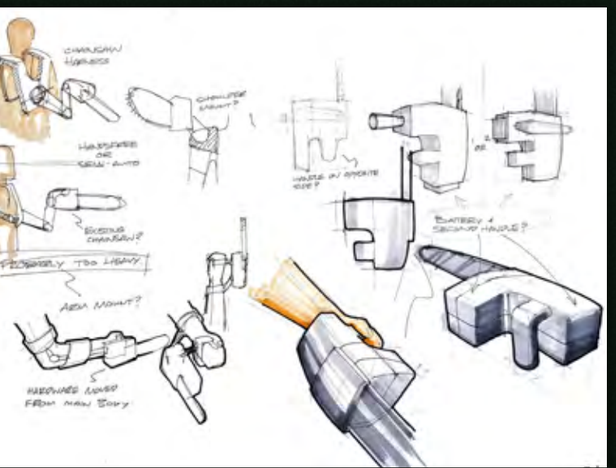


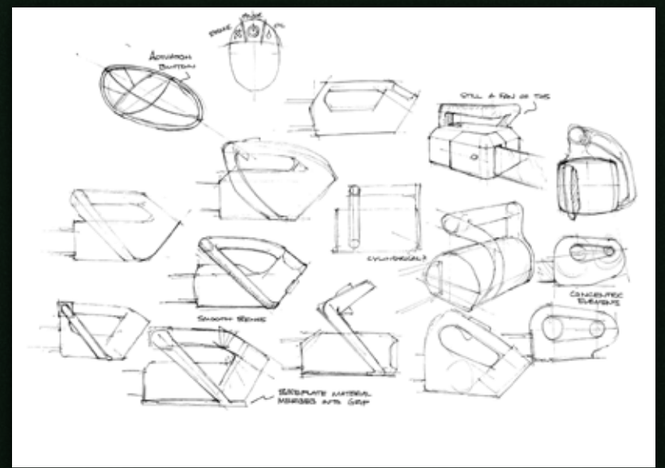


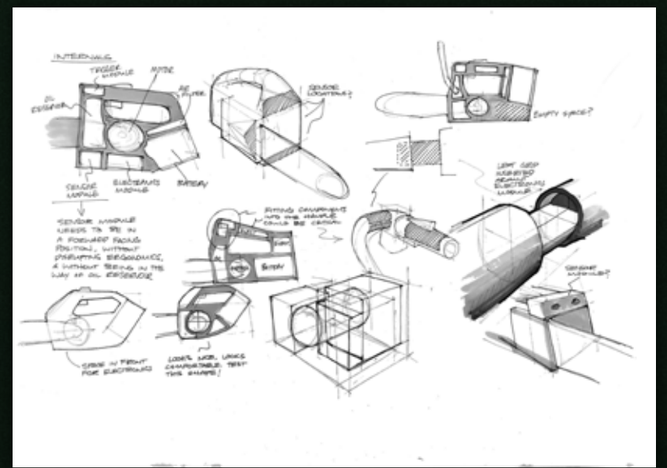

TOO MUCH SCREEN TIME TODAY
LETS TRY PAPER
COMPACT
GAUNTLET STYLE

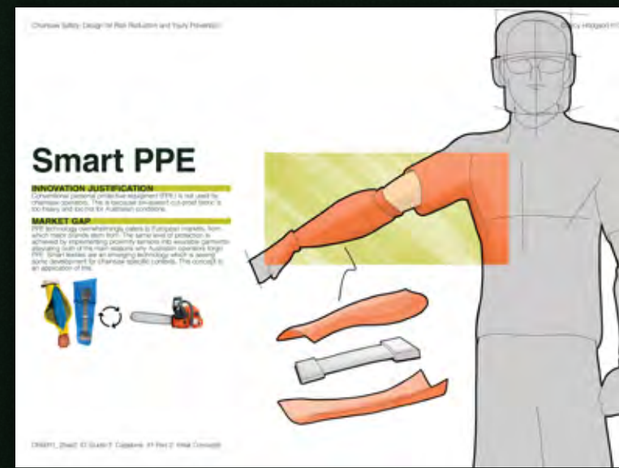



Arborist Chainsaw
INNOVATION JUSTIFICATION
MARKET GAP
FRONT FACING SENSOR
SOFTWARE RECOGNISES IMMINENT COLLISION
ARM & HAND SENSOR
TORSO SENSOR

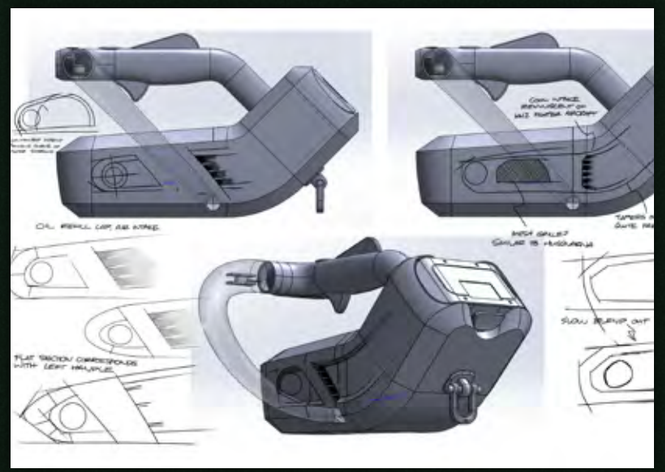


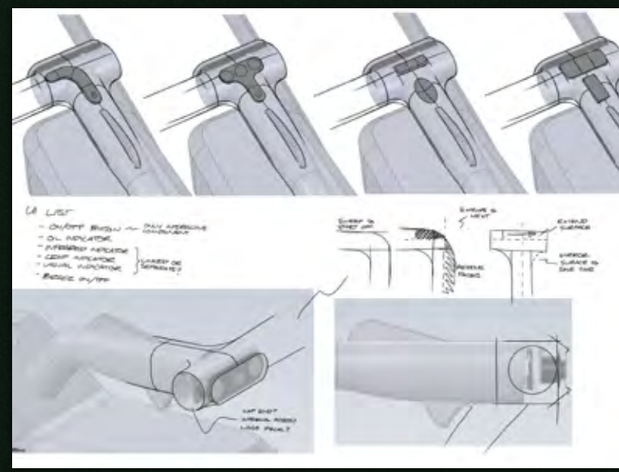


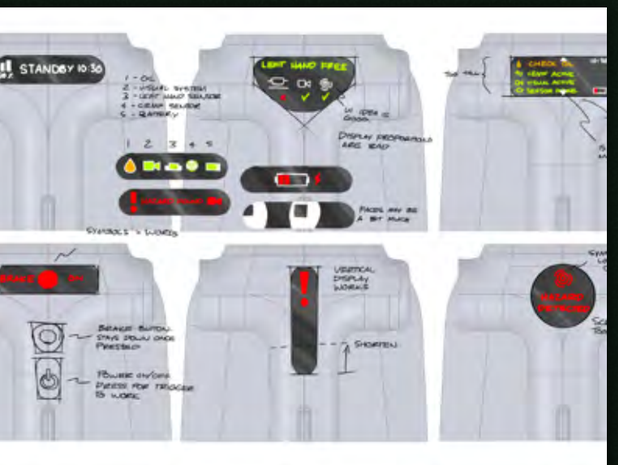


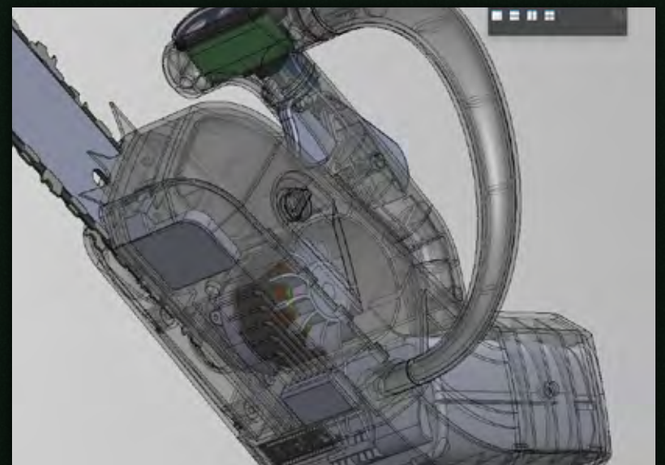

Smart PPE
INNOVATION JUSTIFICATION
MARKET GAP

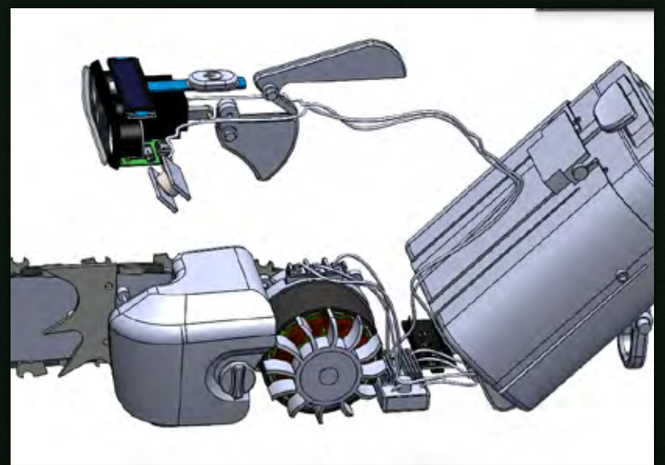
eate **3** **Iterate** Deliver

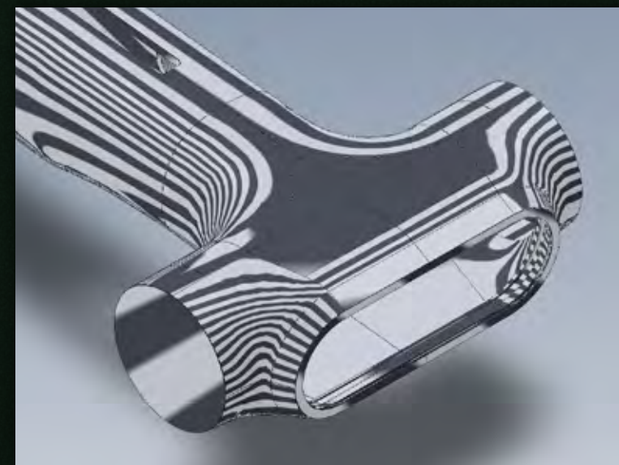




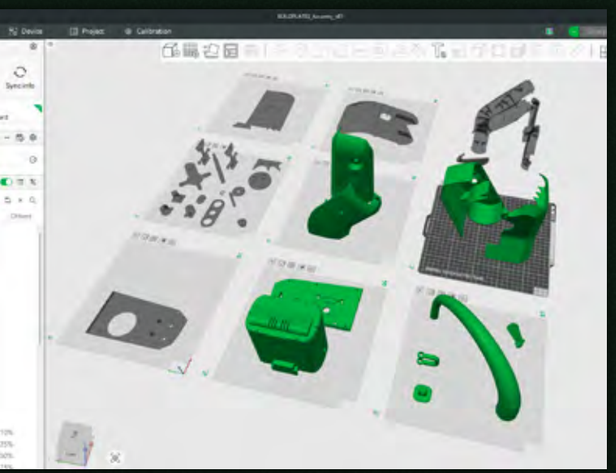
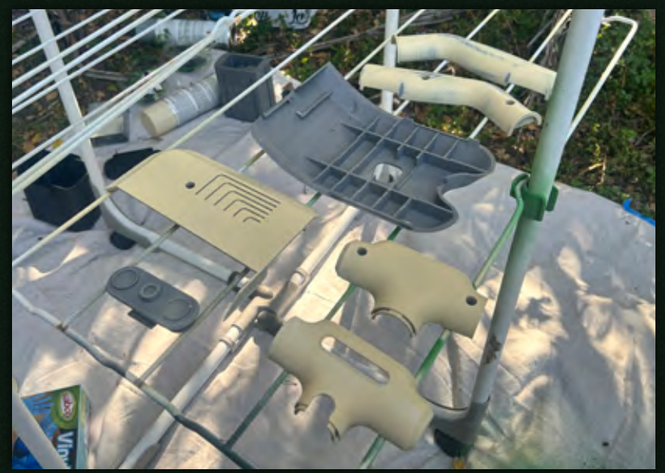


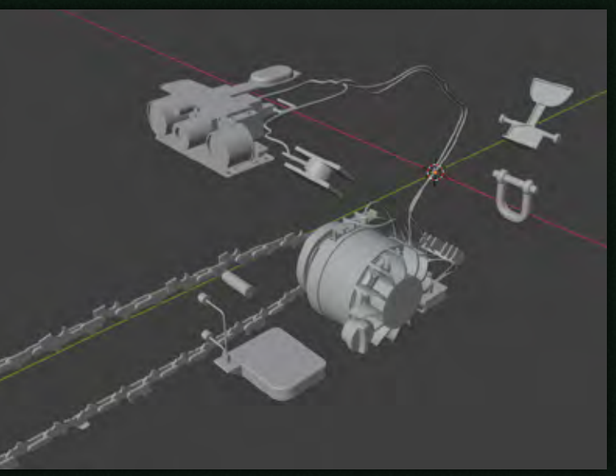


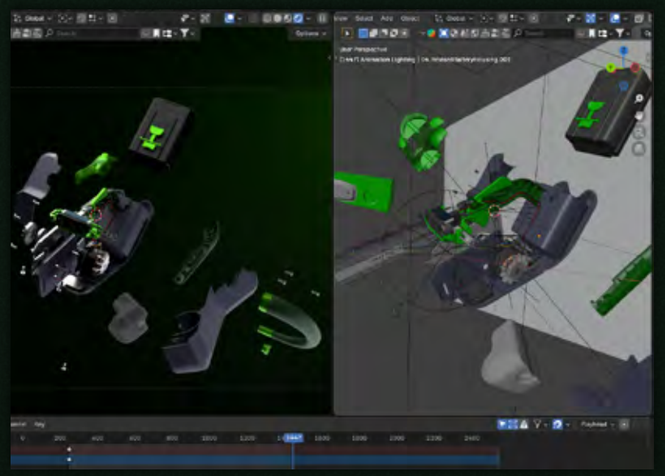


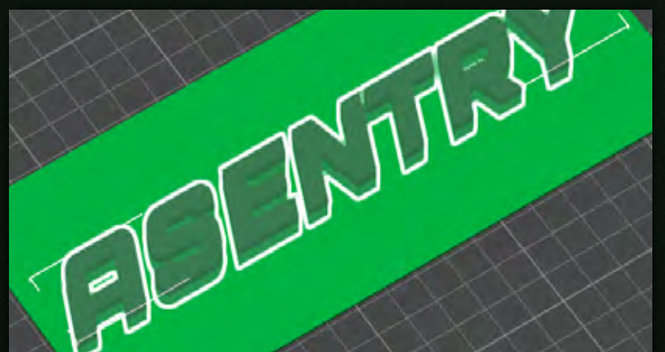


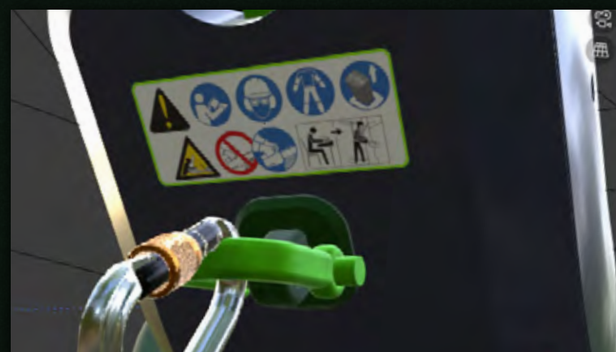
erate **4 Deliver**

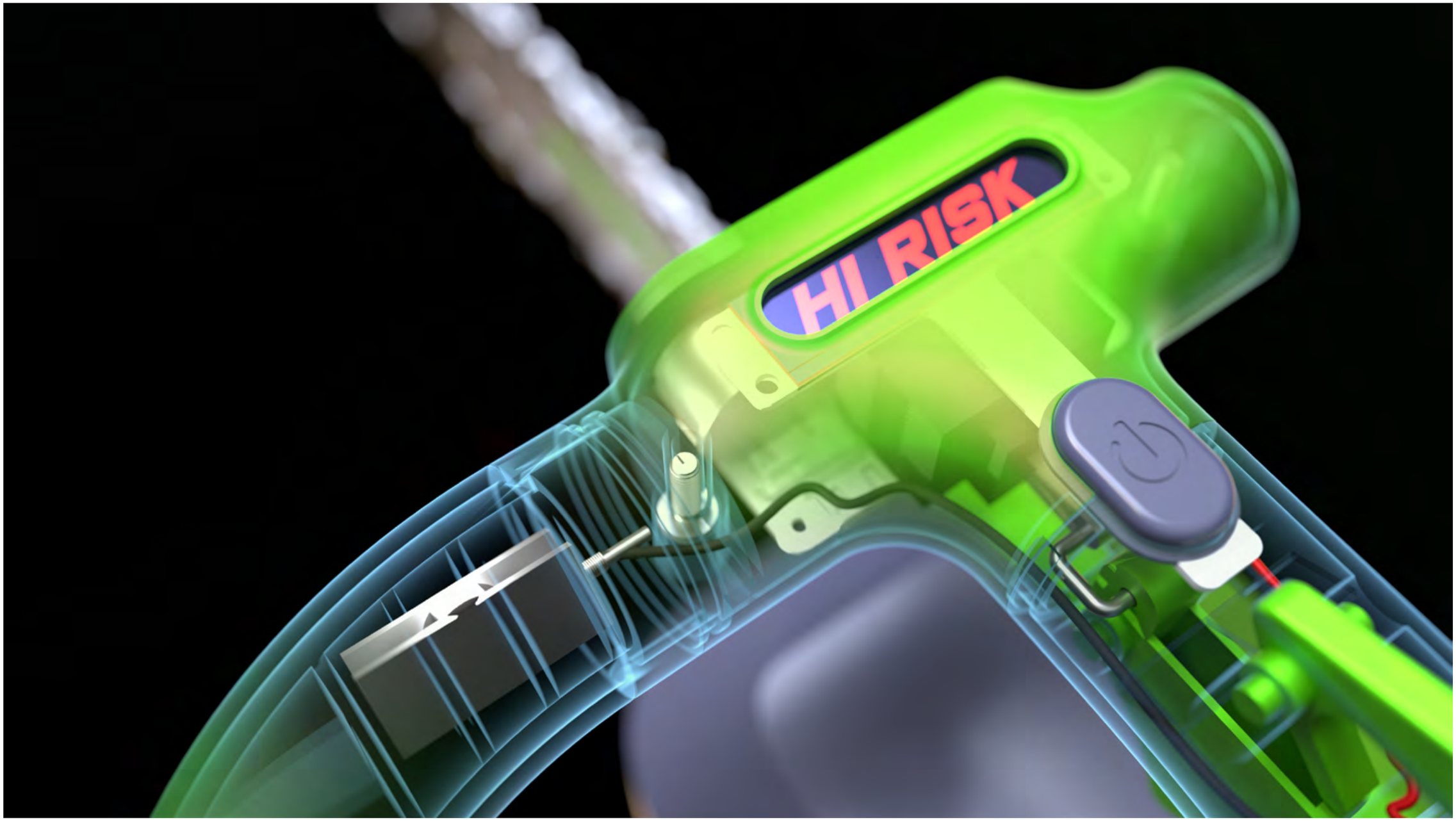





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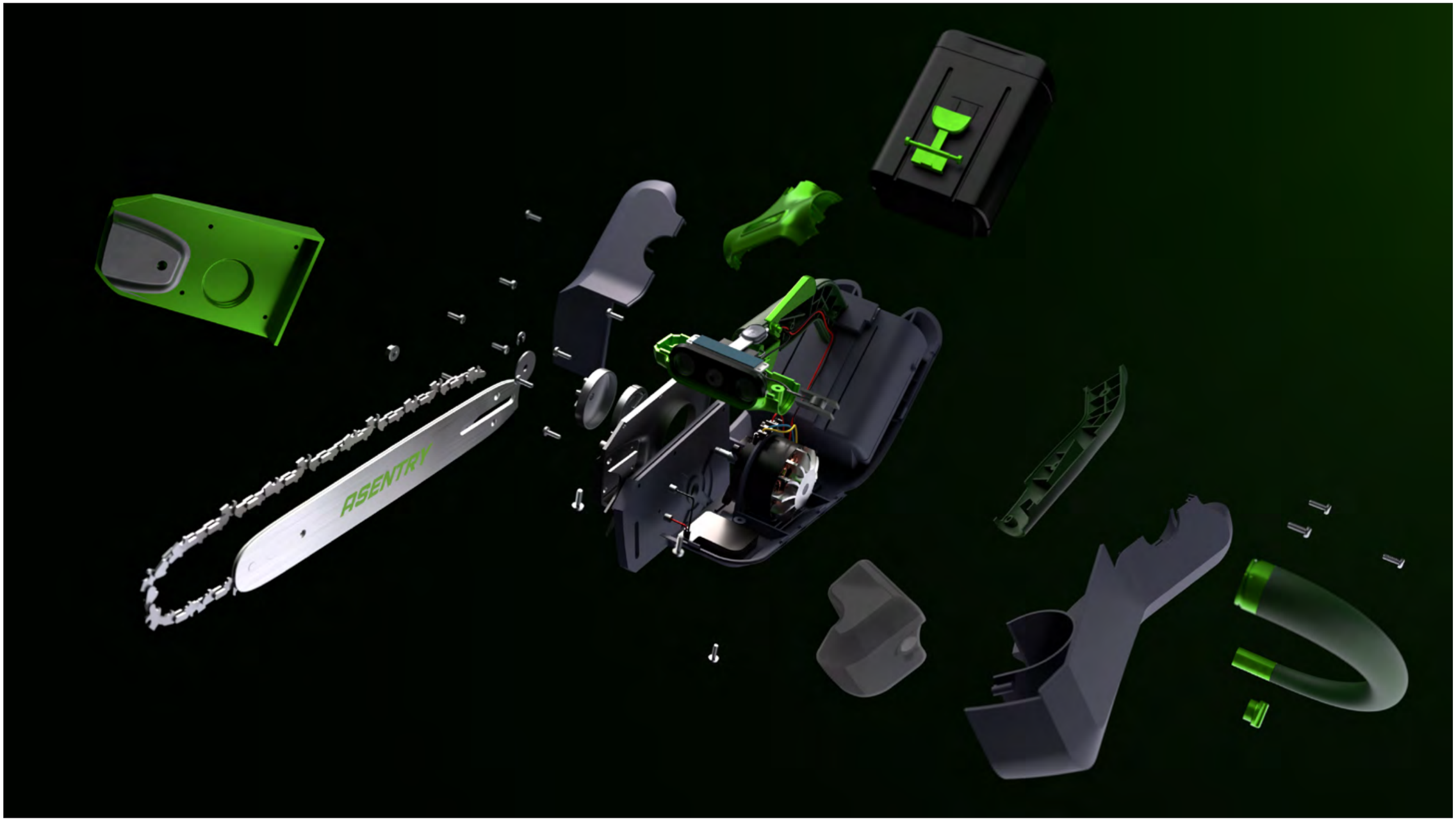
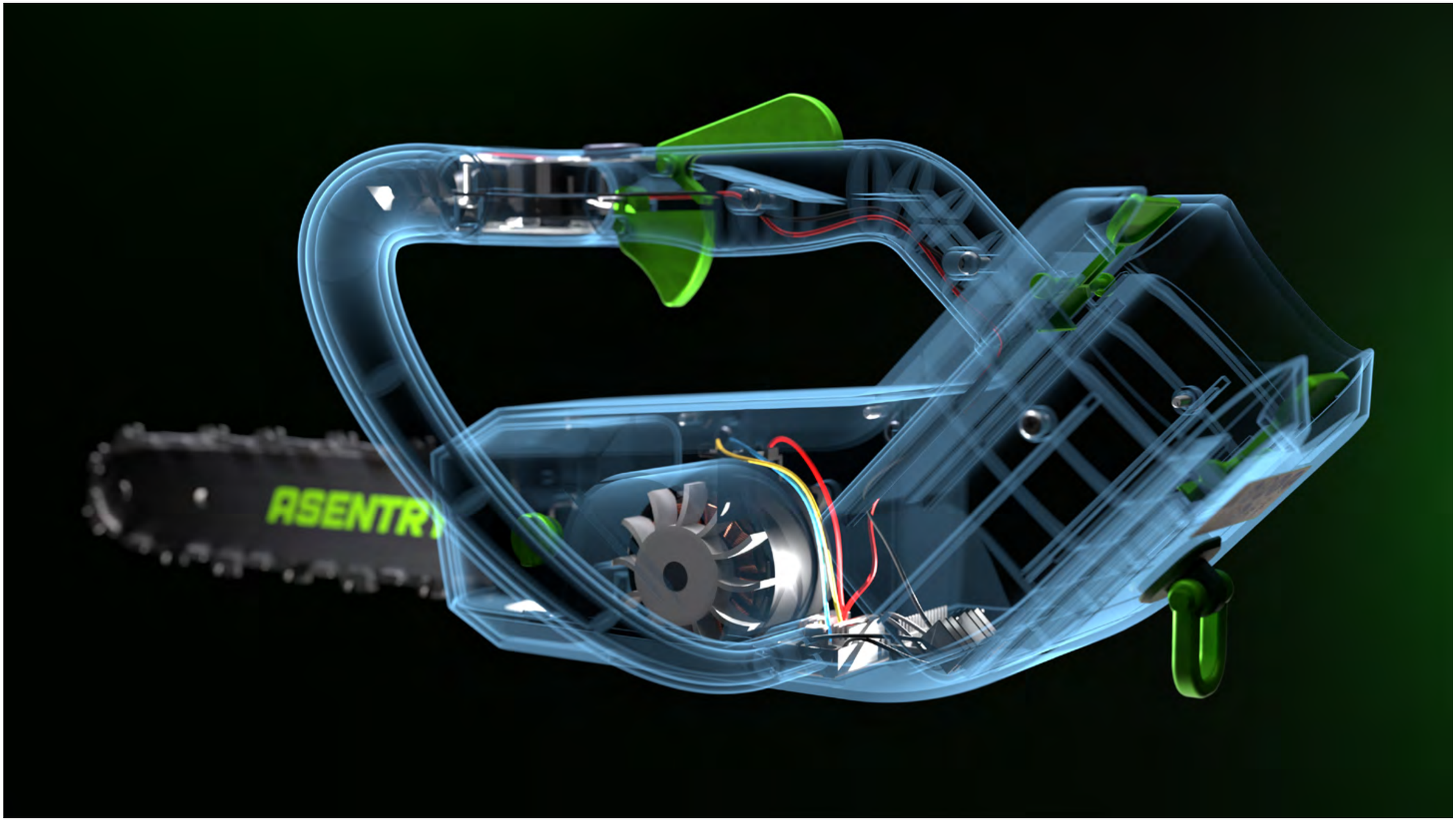

ASENTRY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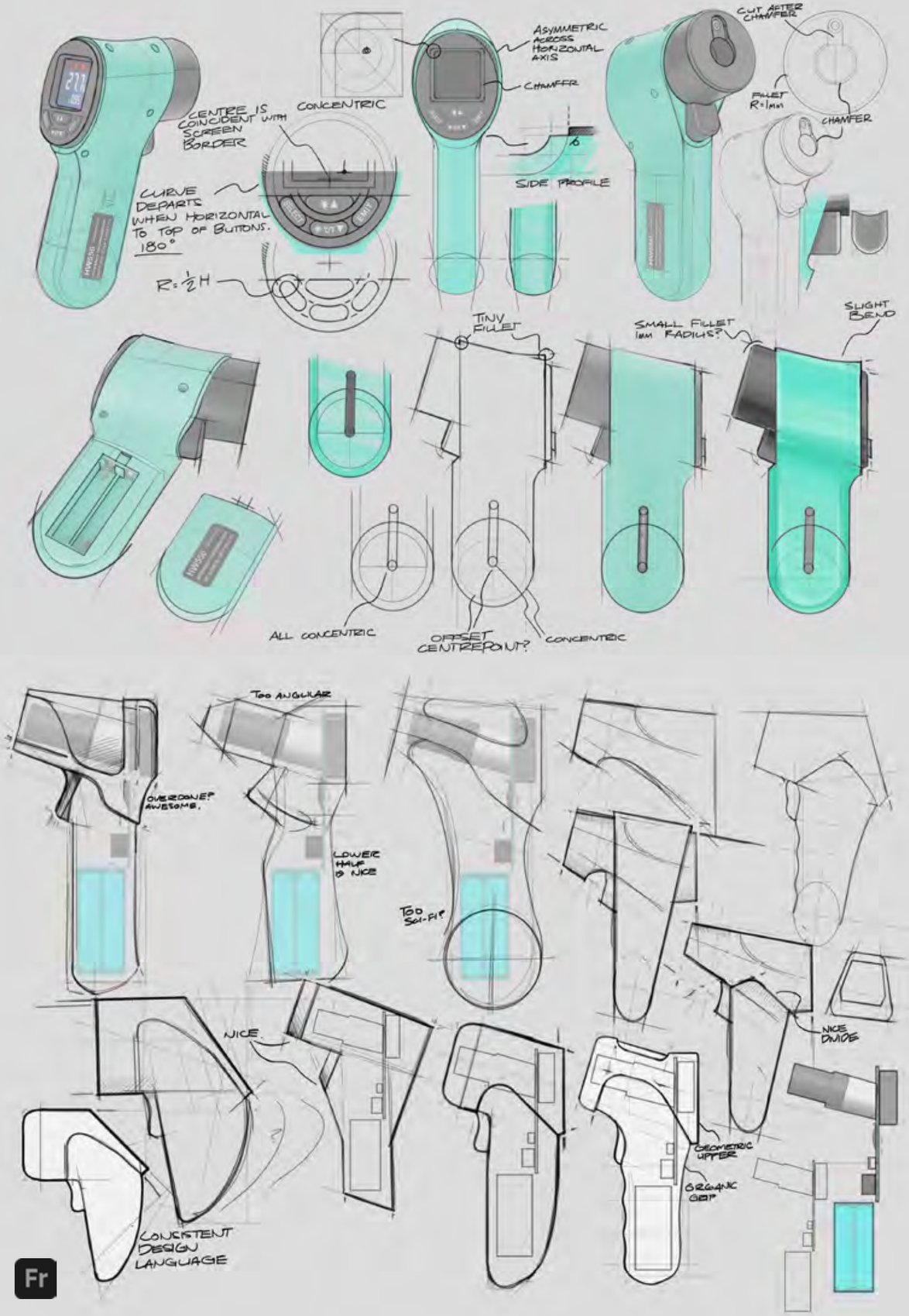
ASENTRY


ASENTRY

02

‘DUNE’ DIGTIAL THERMOMETER

March-June 2024



Skills

DESIGN FOR MANUFACTURE

The purpose of this project was to create manufacturable housing for a digital infrared thermometer.

BOTTOM-UP DESIGN

Bottom-up design approach was used. Exterior plastic parts were arranged around pre-defined internals.

SURFACE MODELLING

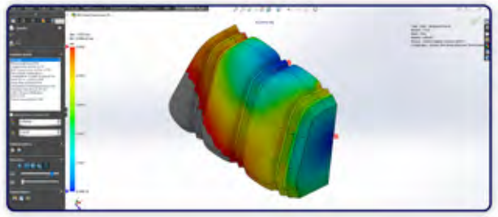
Solidworks surfacing was used to generate almost every exterior facing surface on this product.

MOULD FLOW ANALYSIS

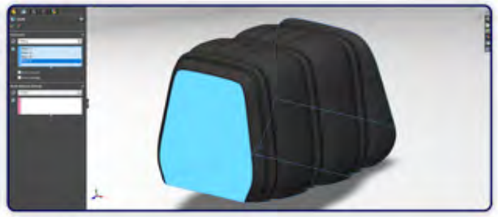
Solidworks simulations informed the design of the components.

KEYSHOT RENDERING

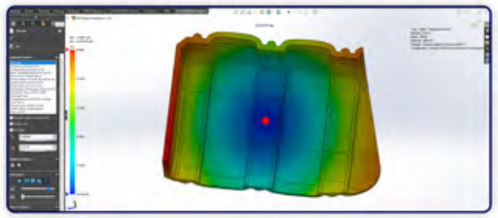
The final renders were generated in Keyshot.



ANALYSIS
The first study failed entirely. Placing the injection points along the edges caused uneven flow speed in visible areas where the finish must be the strongest.

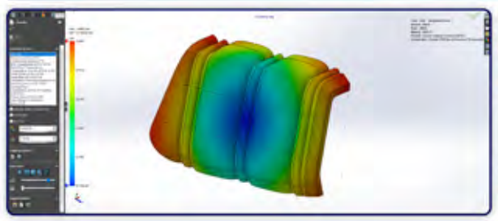


CHANGES
Altering the shell feature by deselecting the body and selecting the faces. Removing the perpendicular surfaces should drastically improve the flow.



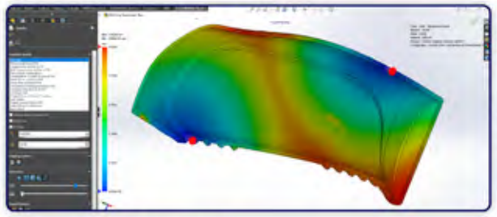
ANALYSIS
The changes to the shell feature made a big difference to the flow. I also discovered that one injection point is a viable option here.

CHANGES
Further removal of the perpendicular front face was required. Offset geometry and surfacing allowed a cut at a better location than what i could by altering shell.

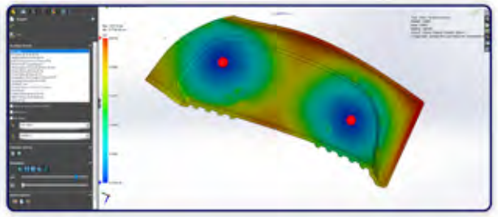


ANALYSIS
The first study failed entirely. Placing the injection points along the edges caused uneven flow speed in visible areas where the finish must be the strongest.

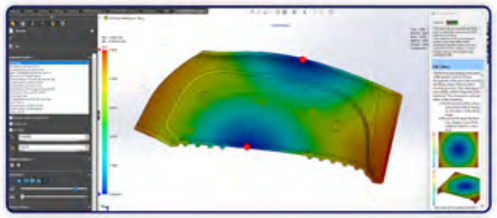
CHANGES
There was a small amount of detail in red that could be cut away and replaced by another part in the assembly.



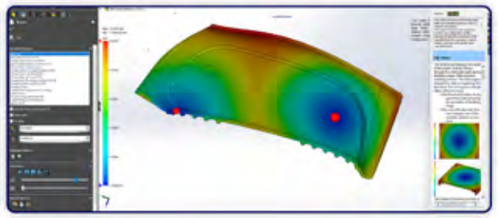
ATTEMPT 5 (PART CHANGES)
Cut a large chunk of material off the top of the part, including removing an entire face which was perpendicular to the main length. Flow improved a lot this time.



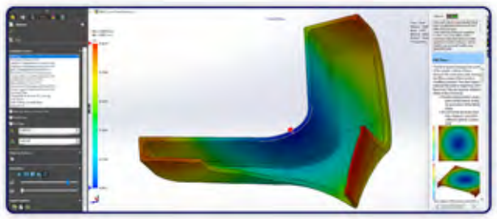
ATTEMPT 6
Injecting on the inside face was a big improvement to the overall plastic flow.



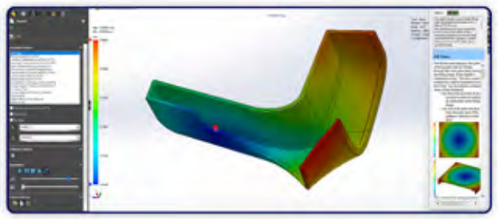
ATTEMPT 7
The injection points here worked well the first time, and it does a great job with the modified part. There is limited room for improvement to this.



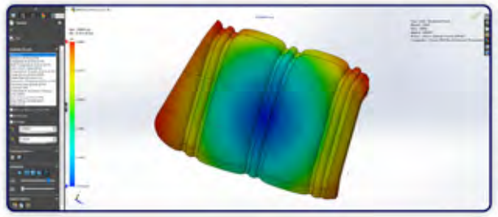
ATTEMPT 8
One injection point on the edge, and one on the inside face. Produced only one red ara that was problematic.



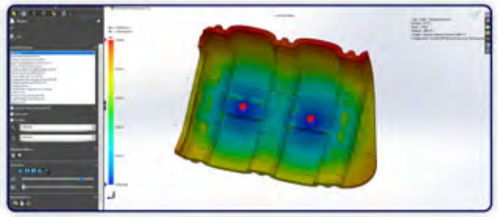
ATTEMPT 1
One injection point in the top middle worked quite well. The blue areas are all hidden in the final assembly so a better injection point was required



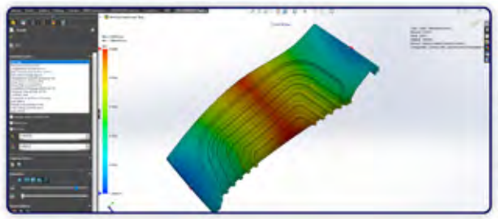
ATTEMPT 2
Injecting on low point had a limited impact on the study. The entire left section is really nicely done, so potentially two injection points would be ideal.



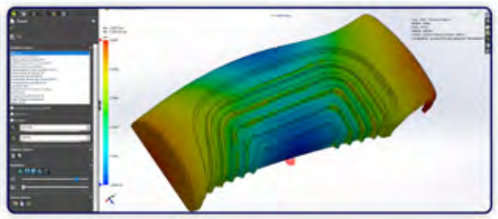
ANALYSIS
The flow is okay on this model. Generally only the extremities lose quality. Plastic flow is nice and even despite the highest mesh quality being y



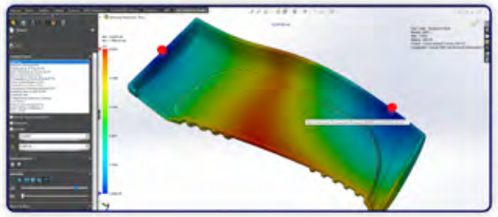
CHANGES
Injecting between two new ribs was largely detrimental. There are horrible imperfections in many of the exterior and interior surfaces, and lots of red.



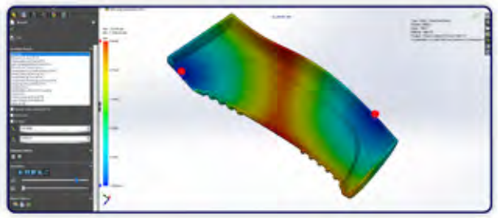
ATTEMPT 1
Injection at the top and bottom caused too much red in the centre.



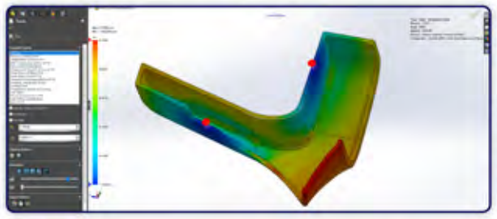
ATTEMPT 2
Injection at the sides caused less red overall but more surface imperfections in the raised details in the middle.



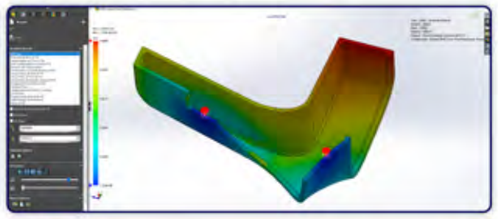
ATTEMPT 3
Injection along two different edges produced two much red nearest to the furest face.



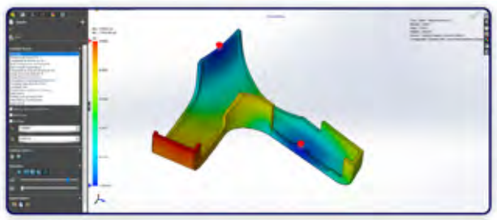
ATTEMPT 4
Another version of opposite side injection points. Once again there is too much red in the middle.



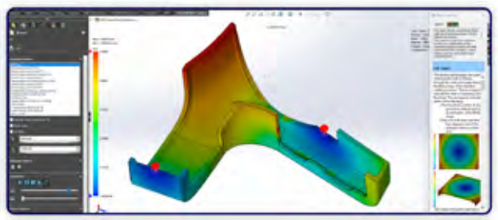
ATTEMPT 3
Splitting the flow between two points created imperfections in the flow around the meeting points, all without improving the quality of the lower face.



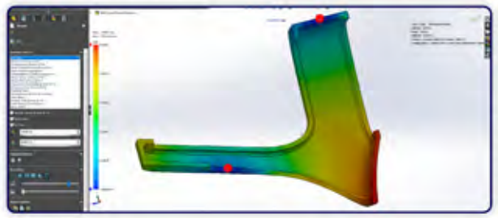
ATTEMPT 4
These two injection points seems to be a better combination of locations. More material needs to reach the top face.



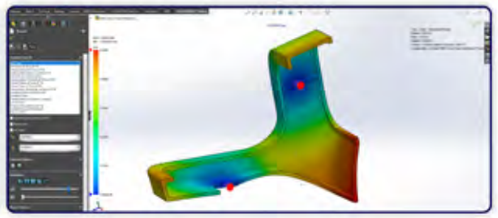
ATTEMPT 5
Cut a large chunk of material was removed where the rightmost injection point now stands. Material was also taken off around the top (visually lower left).



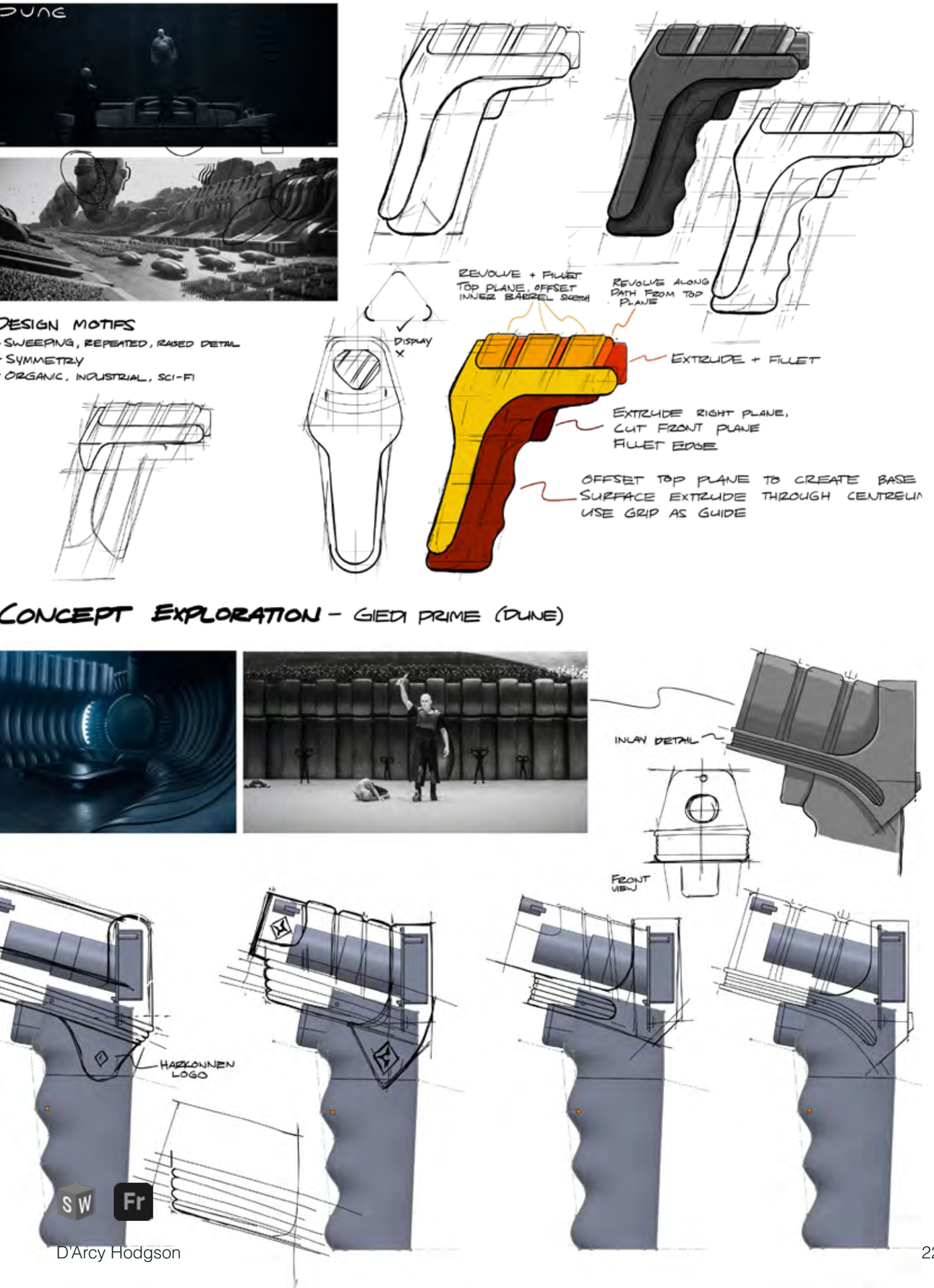
ATTEMPT 6
The section in the top right is difficult to reach with



ATTEMPT 7
The injection points here worked well the first time, and it does a great job with the modified part. There is limited room for improvement to this.



ATTEMPT 8
Adding a rib to the inside face helped take the red out of the lower right portion of the part.



CONCEPT EXPLORATION – GIEDI PRIME (DUNE)

My Inspirations

SCIENCE-FICTION

Sci-fi has always been a great source of inspiration for me. This project coincided with the release of Denis Villeneuve's adaptation of Frank Herbert's Dune: one of my favouite novels. Patrice Vermette's Giger-esque production design is the principal source of inspiration behind the aesthetic direction of this project.

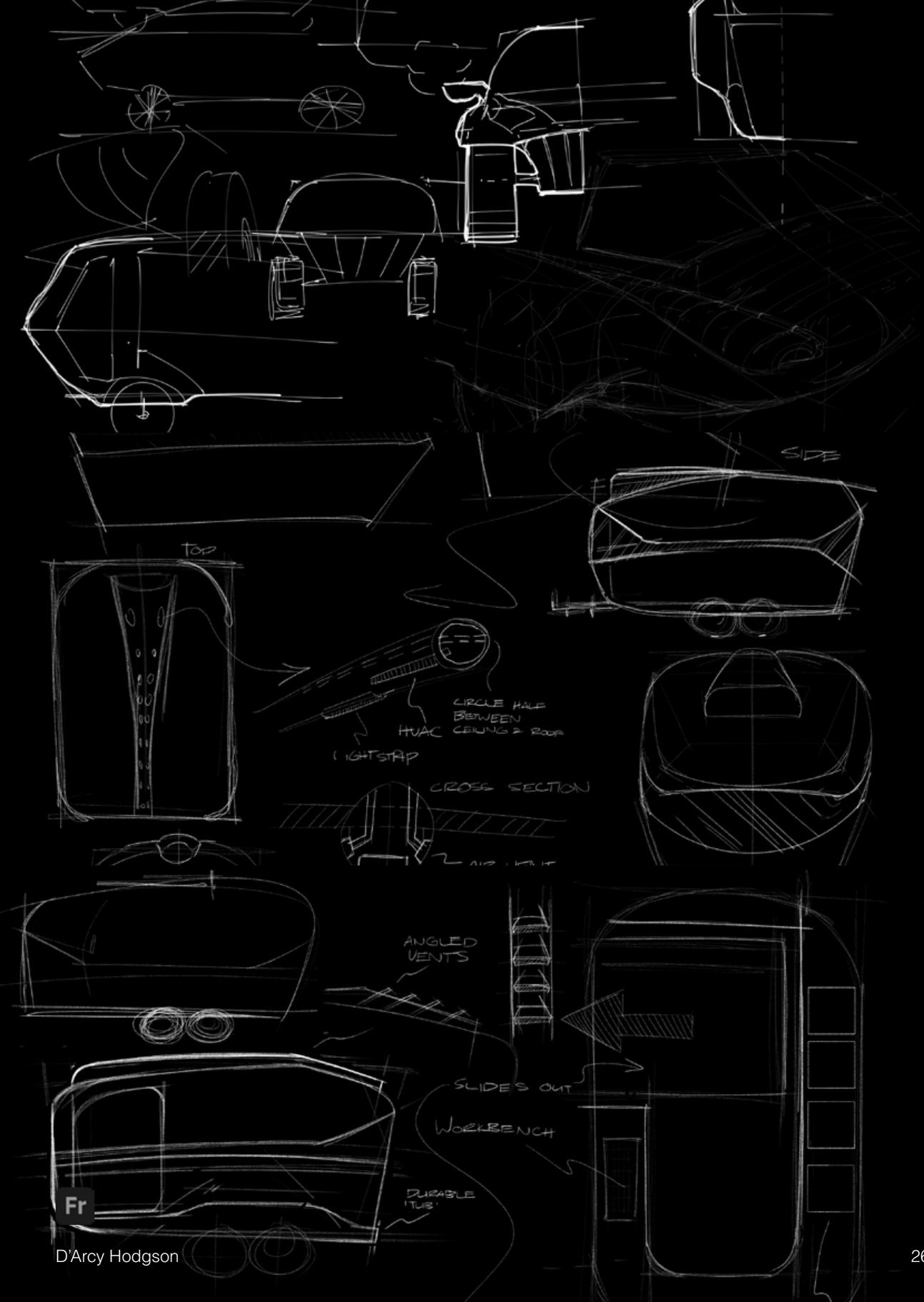

24°
INFRARED THERMOMETER

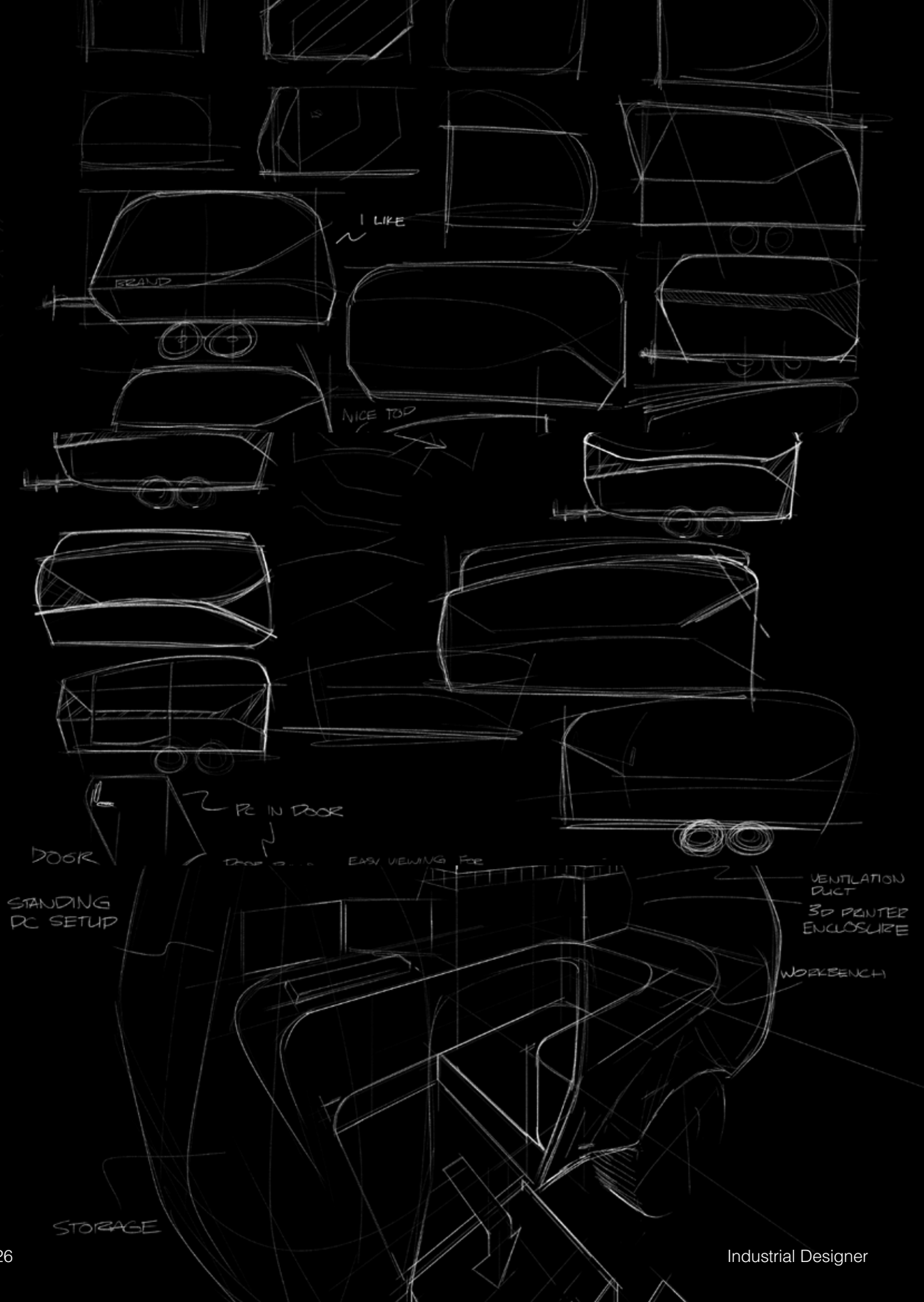

INFRARED THERMOMETER

03

NOMAD 3D

March-June 2024


TOP
SIDE
CIRCLE HALF BETWEEN CEILING & ROOF
HVAC
LIGHTSTRIP
CROSS SECTION
ANGLED VENTS
SLIDES OUT
WORKBENCH
DURABLE 'TUB'


I LIKE
BRAND
NICE TOP
DOOR
PC IN DOOR
STANDING PC SETUP
EASY VIEWING FOR
VENTILATION DUCT
3D PRINTER ENCLOSURE
WORKBENCH
STORAGE

Concept

NOMAD 3D

Nomad 3D is a repair service aimed at bringing the benefits of additive manufacturing to rural Australian communities, who, for logistical reasons, are out of reach of traditional repair services and hardware retailers. Pellet extrusion lowers material cost, enabling the service to operate through a van.

Process

SYSTEMS MAPPING

Before the design process begun, we researched key stakeholders and mapped out product ecosystems that surround print farming businesses.

CHANGING DIRECTIONS

We initially planned to disrupt medium and large scale manufacturing, but shifted our focused to better suit the case-by-case benefits of additive manufacturing.

MY ROLE

I was responsible for designing the core product. Concept refinement occurred over a three week window. The vehicle was created within a Solidworks assembly. The renders were created using Keyshot. Post processing occured in Photoshop and Illustrator.

BRAINDUMP

ADVANTAGES
- ORGANISED INFORMATION
- STIMULATES CREATIVE THINKING
- MACRO VIEW OF COMPLEX SYSTEMS

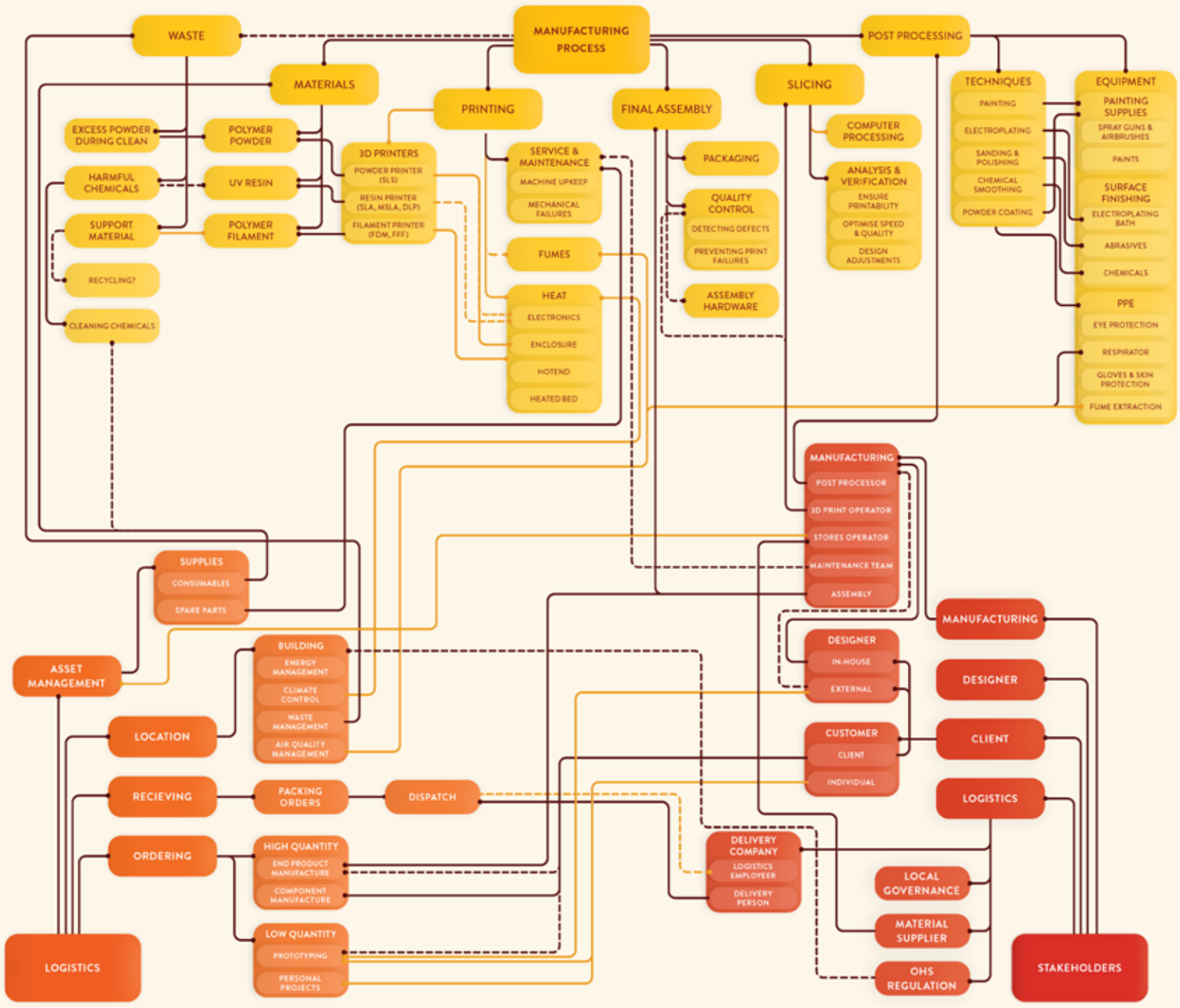
DISADVANTAGES
- LIMITED STRUCTURE
- OVERWHELMING
- TIME CONSUMING

KEY FINDINGS

3D PRINTING
MINIMAL HUMAN INTERVENTION, MACHINE-SPECIFIC MAINTENANCE.

POST PROCESSING
ADDS TO PART COST DUE TO LABOUR-INTENSIVE STEPS.

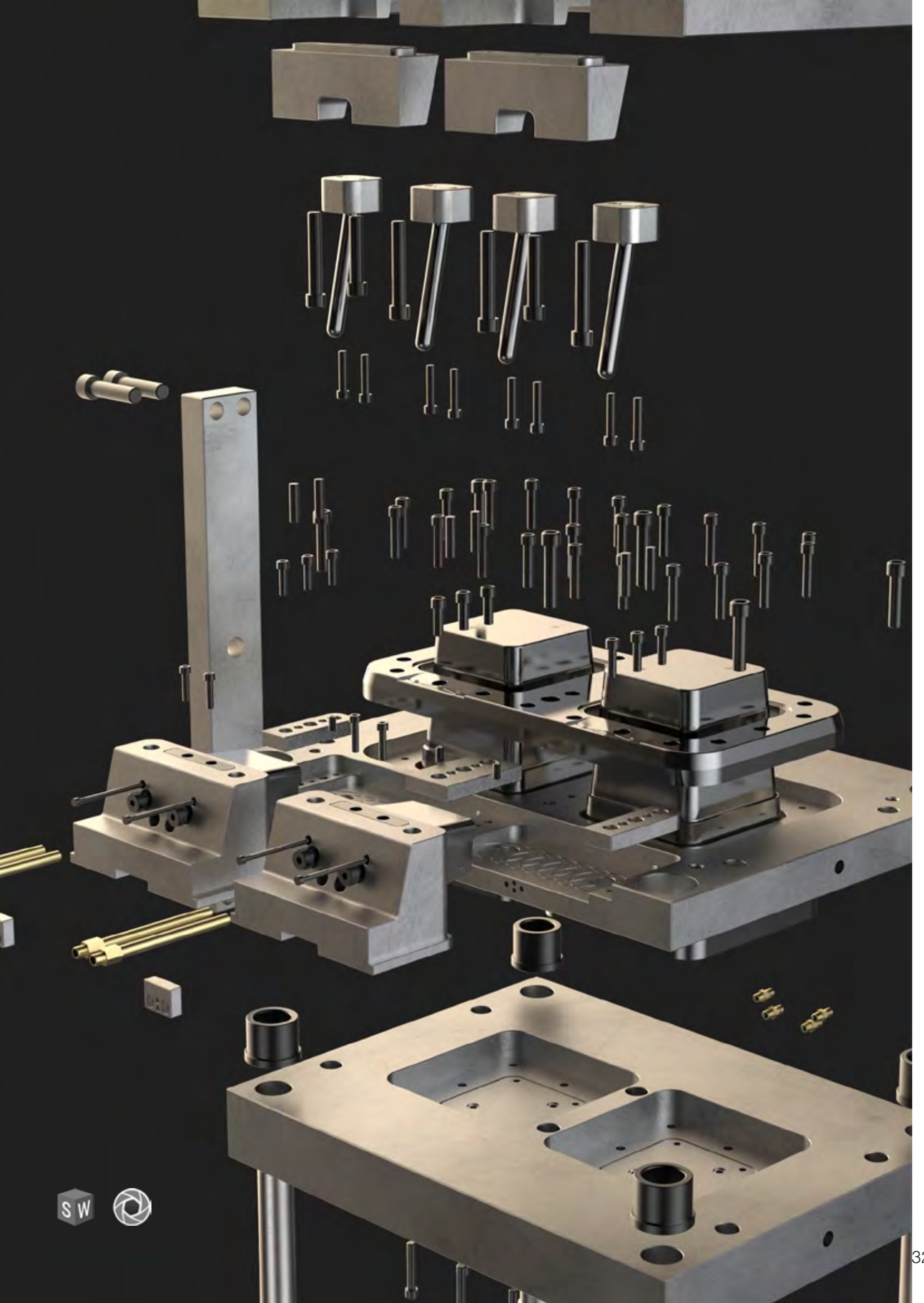
DISPATCH
SIMILAR TO STANDARD MANUFACTURING. SHIPPING IS POTENTIAL BENEFIT OF LOCAL MANUFACTURE.



04

EVOLVE GROUP TOOL ANIMATION

June-July 2024



Workflow

SOLIDWORKS ANIMATION

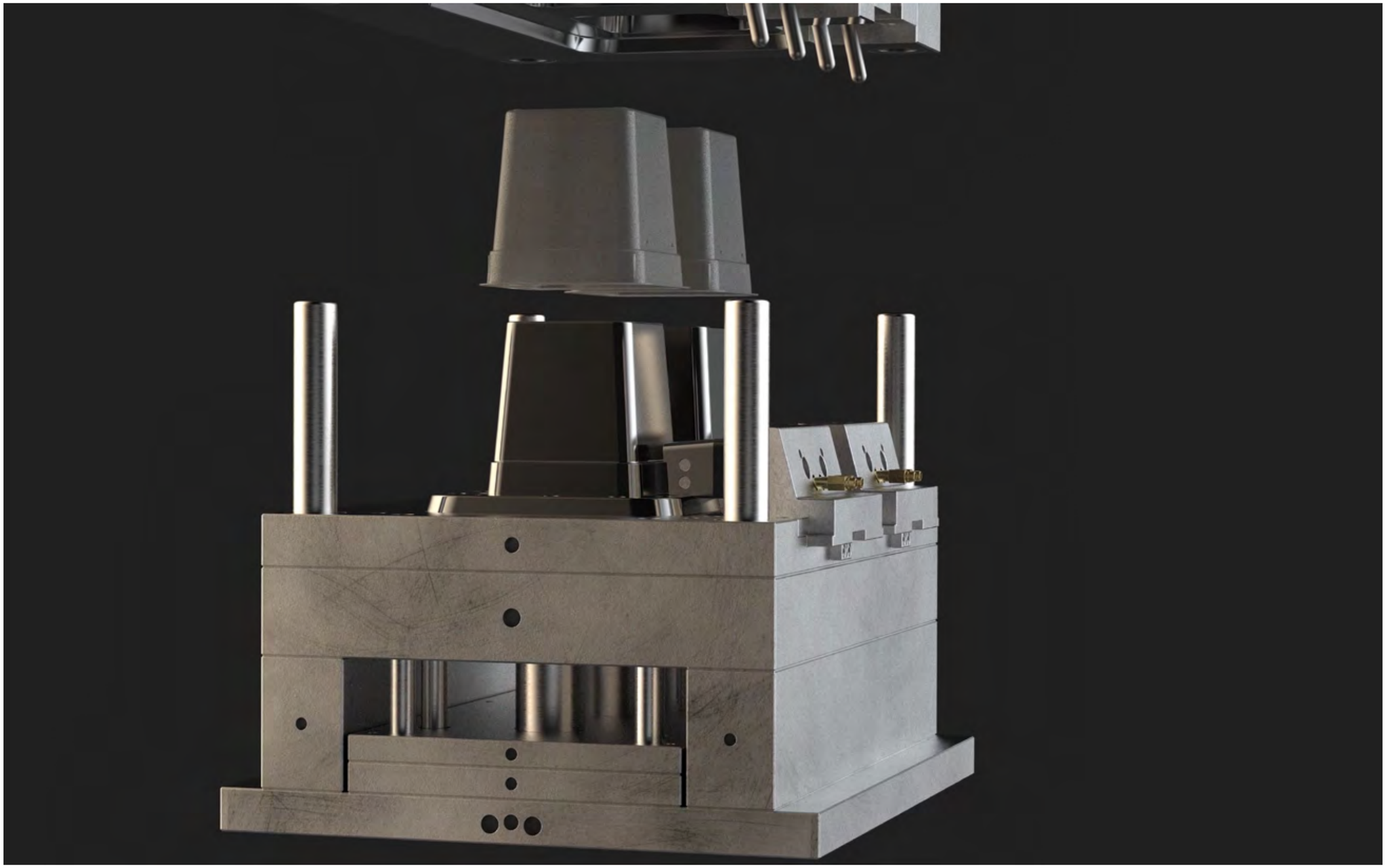
The animation was created in Solidworks by keyframing mates in the assembly, and modifying them to achieve the desired motion.

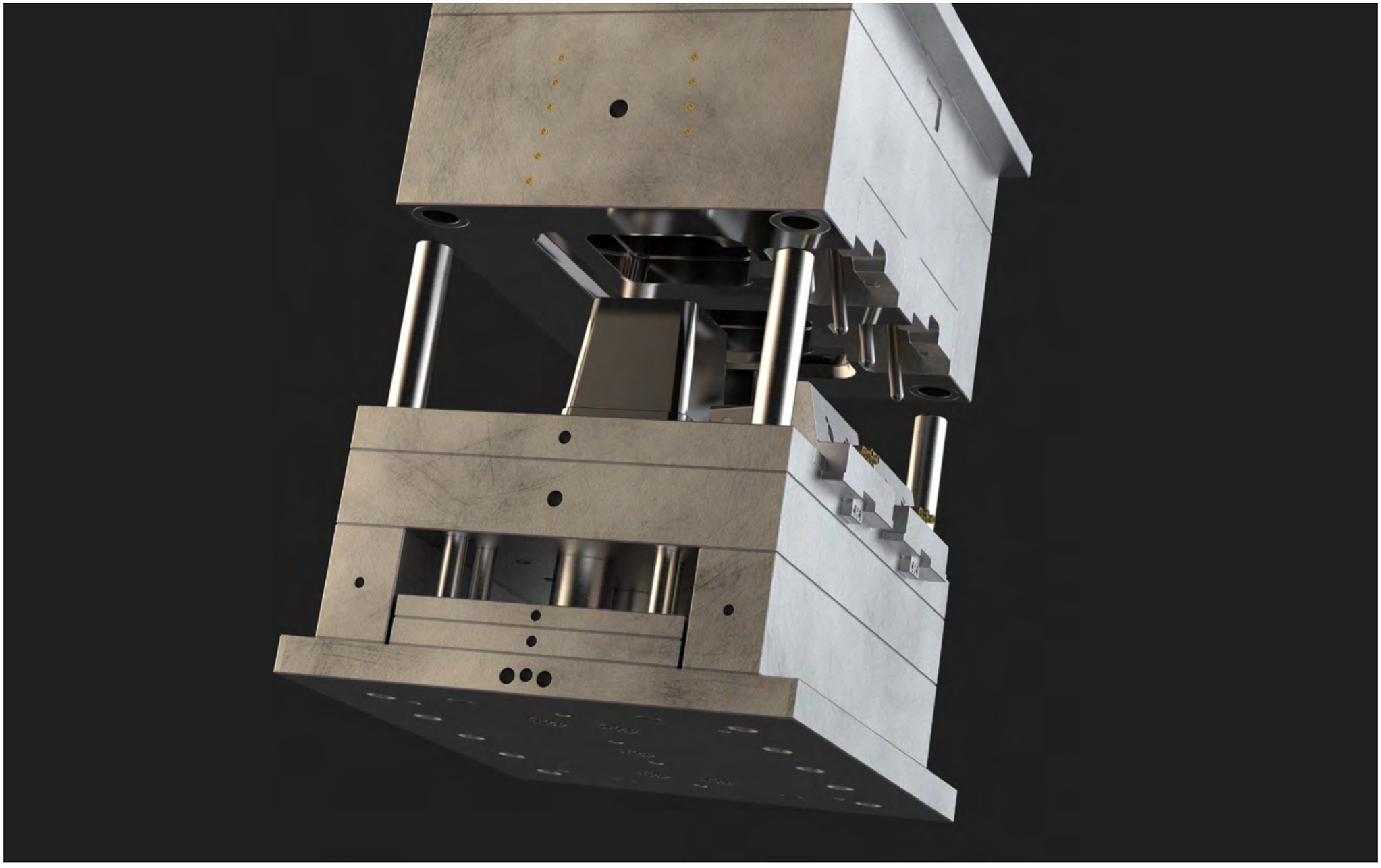
KEYSHOT ADD-ON

The animation was updated in tandem with refinement to the rendered scene itself in Keyshot.

EXPERT CONSULTATION

I had to develop an in-depth understanding of the tool design in order to correctly simulate the motion of the slide mould components. Experts on site were able to help with this.





Contact

PHONE (+61) 466 375 429

EMAIL darcyjhodgson@gmail.com

LINKEDIN https://www.linkedin.com/in/darcyhodgson/

INSTAGRAM @dh_industrialdesign

BEHANCE https://www.behance.net/darcyhodgson

LinkedIn

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