

# BRADLEY BRISTER

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## PRODUCT DESIGN PORTFOLIO 2022



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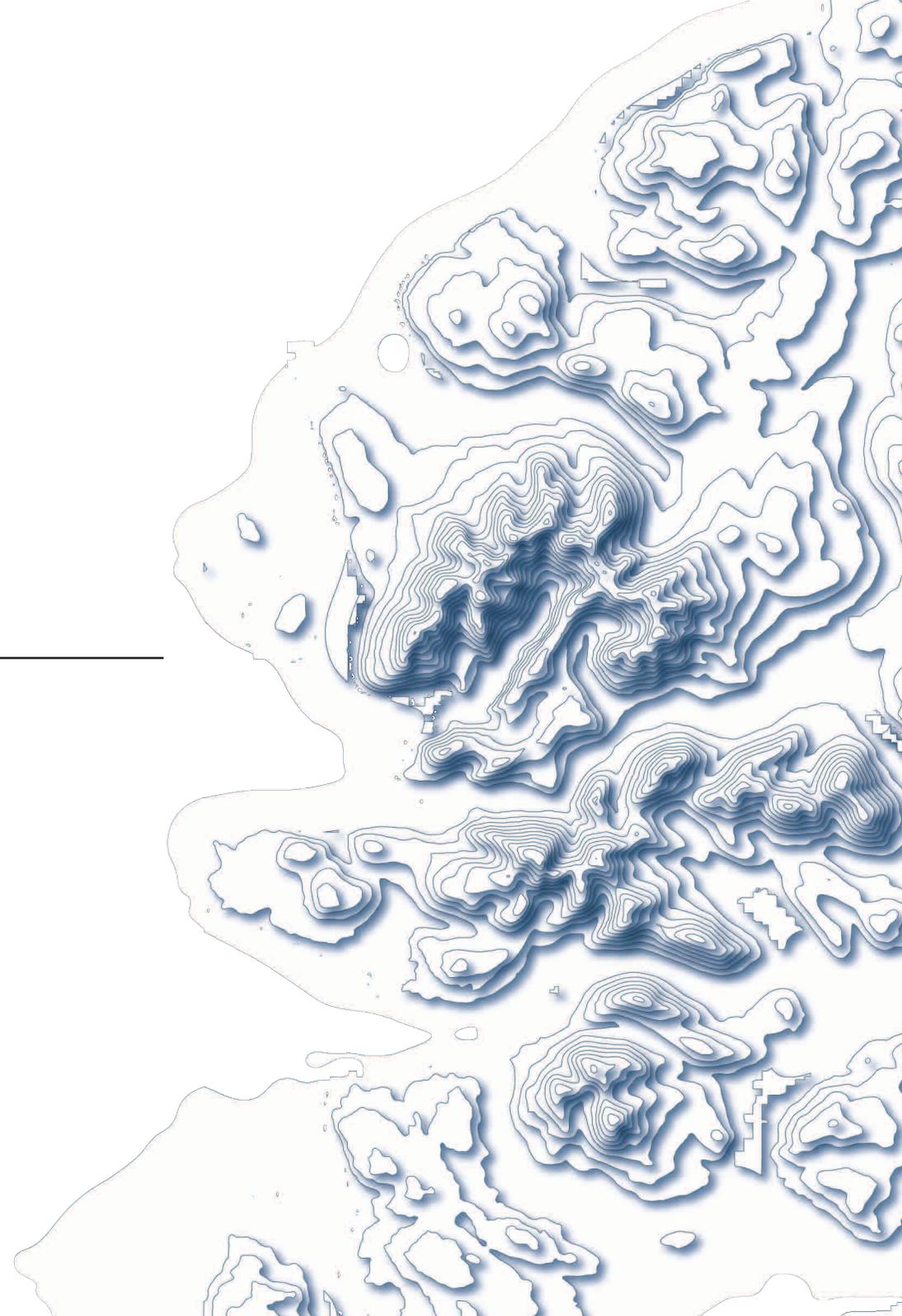
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Behance



Instagram



# A LITTLE BIT ABOUT MYSELF



I am a product design engineer with a special interest in the outdoors. Combining both interests into my concepts. I have a good working understanding of the industry as it's one I actively participate in.

This portfolio should demonstrate my style of creative concept generation, with the technical background to back up concepts with practical production methodology. My skillset lies in building innovative products utilising advanced technologies such as algorithmic design, 3D printing/scanning & 3D sketch modelling.

I have an eagerness to learn everything I can in this industry and well-rounded skills to build on, I have great project management skills having collaborated with companies such as The North Face.

I regularly go out on hiking and climbing expeditions to all sorts of remote locations and will continue to do so into the future wherever possible.

# PROJECTS

01



## LACOSTE FOOTWEAR

Overview of 3D modelling, rendering & algorithmic design working at Lacoste.

02



## GET LOST CLOTHING UK

T-shirt graphic designs for a hiking based clothing brand.

03



## NORTH FACE SUN-UP

Combining the efficiency benefits of a rigid panel with the durability benefits of thin-film panels to form an articulating hinged array.

04



## PATHFINDER BACKPACK

A project sketching, designing and modelling a backpack using Rhino, Marvelous Designer Keyshot and Blender.

05



## TITANIUM HIKING KETTLE

Lightweight hiking kettle inspired by traditional japanese designs.

06



## TARP PROJECT

Ultralight tarp for hiking made from Kerlon ultra-siliconised nylon.

07



## LUMII LANTERN

Placement year project redesigning LED lantern for hiking & camping.

08



## UNIVERSAL PANNIER

Cargo carrying pannier. Folds flat when not in use, expanding to fit the cargo.



# LACOSTE

Footwear design, soft goods modelling, animation, reverse engineering & product visualisation

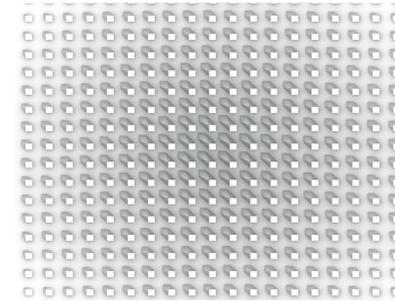
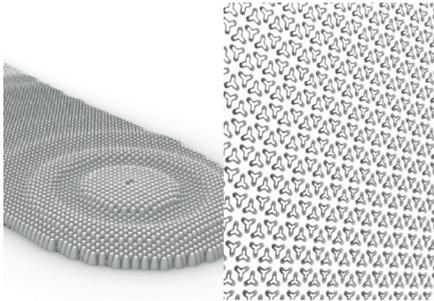


**CONCEPT GENERATION**



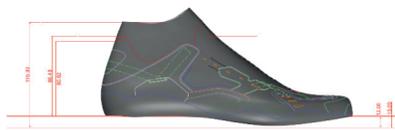
Examples of sketchwork shown not from live projects due to NDA but based from similar briefs to what would be set internally.

**3D CONCEPTS**



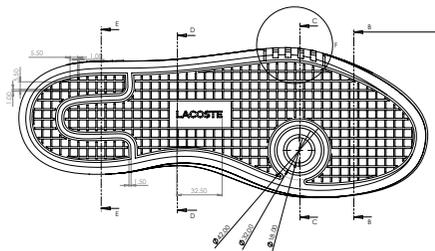
Experimentation for lug patterns in grasshopper & 3D modelling within Illustrator, Rhino & Solidworks.

**3D TECHPACKS**



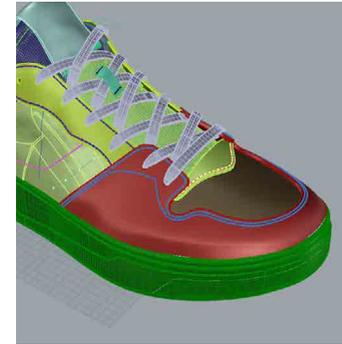
Designed by Dave hickman, 3D techpack built in Rhino, 3D printed for validation and rendered in Keyshot by myself

**TOOLING DEVELOPMENT**



In season tooling development using solidworks to build the outsole and rhino for the upper unit. BP sent to the factory for further development.

# RENDERING & MODEL BUILDING



Modelling uppers in rhino, stitching using custom grasshopper algorithm, rendered and textured in Keyshot for photorealistic marketing assets.

## ALGORITHMIC DESIGN



Algorithmic tread & outsole design done using grasshopper for in-season future concept creation.

## 3D SCANNING



3D Scanning using Artec EVA scanner, utilised for reverse engineering archive styles & modelling existing models.

## ANIMATION



Animation for global marketing assets. Made with Blender, Keyshot & After effects.



# GET LOST UK APPAREL DESIGNS

T-shirt concepts for a new clothing brand starting up in the hiking market.



# THE NORTH FACE SUN UP

Flexible solar backpack with triple the efficiency of other fully flexible solar panels.

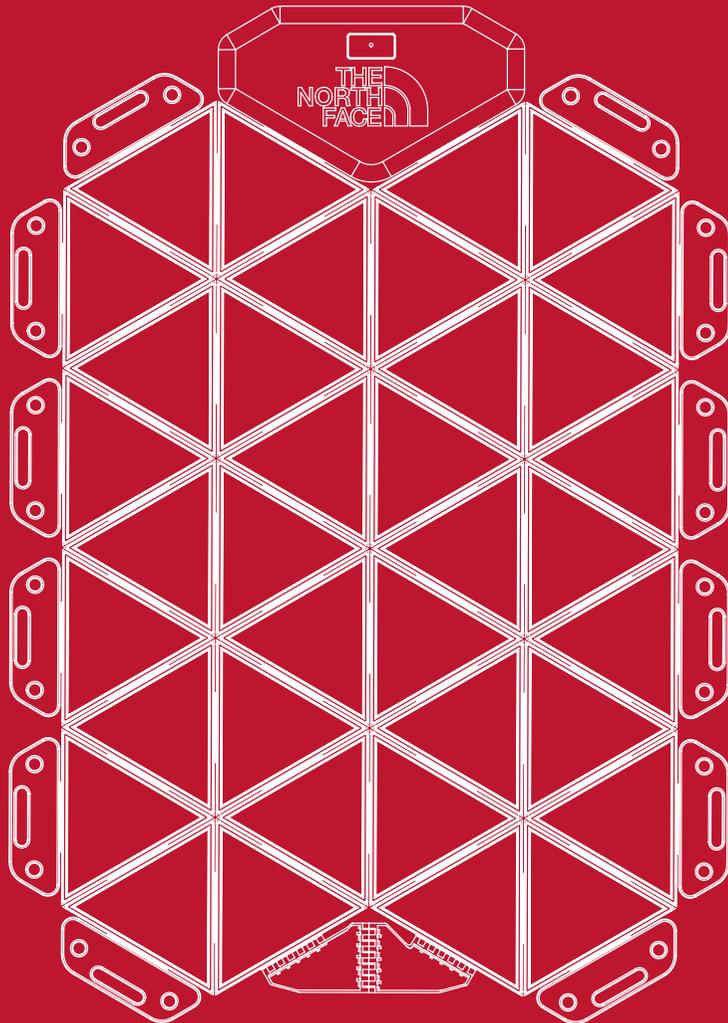
THE  
JAMES  
DYSON  
AWARD



KeyShot



SOLIDWORKS



## + PROBLEM

Around **24 million** people in the UK actively engage in outdoor pursuits, of these **98%** take some form of electronic device out hiking with them.

Safety is a key concern and ensuring people have an emergency tether to civilisation is vitally important.

## + BRIEF

To create a solar charging and battery storage system to keep a plethora of devices and equipment fully charged in all environmental conditions.

And maintain a **high-efficiency** output whilst being rugged and durable in environments from which communication to the outside world is

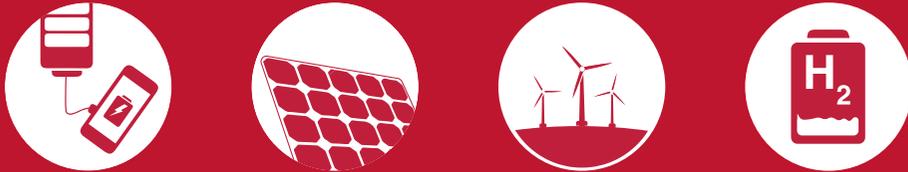
## + OVERVIEW

SunUp is a **fully articulating solar backpack**.

The 3 most common items taken that would benefit from charging was a smartphone, a GPS and a camera.

# MARKET

Some options people use for charging their devices whilst hiking include the battery bank, solar panels, hydrogen fuel cells and wind and wave powers. Obviously, the last 2 are more experimental and whilst a few products do exist for these they are few and far between.



Below are 3 common solar chargers. The Biolite 5+, Nomad 7+ and the SunSoaker 10w. The first 2 are feature rigid monocrystalline panels and the last is a thin film panel.

As you can see from the size differences the 5/7 watt rigid panels are easily 2/3rds the size of the sunsoaker. Which still requires unfurling when needing to be used at full efficiency.

All 3 of these panels are shown being placed on the long edge of a pack. Massively reducing the usable energy these panels would produce.



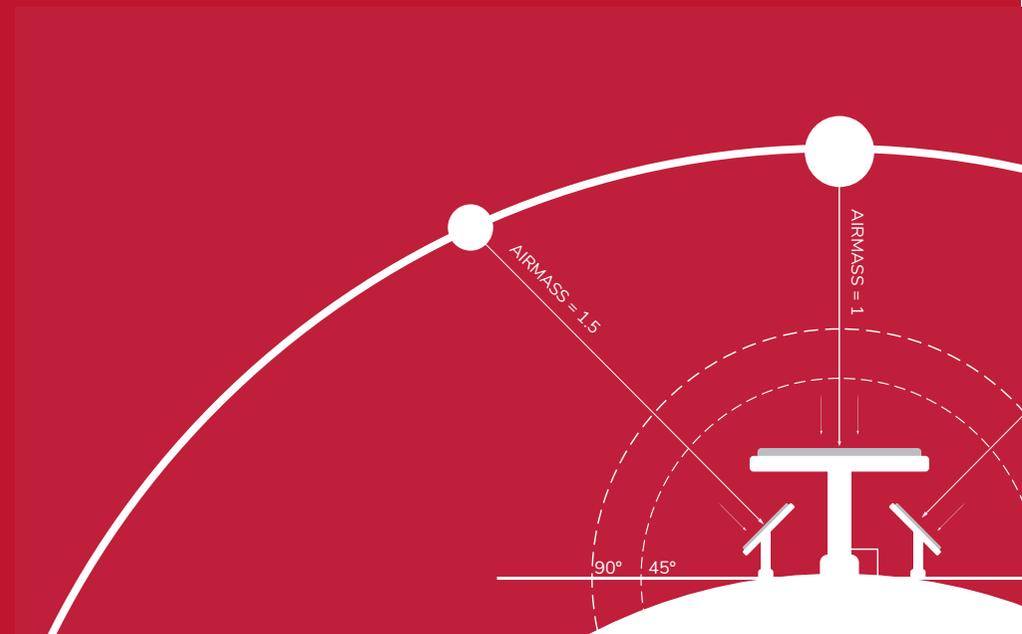
# FOCAL POINTS

The main problem the SunUp project is designed to solve is that of poorly optimised and fragile hiking panels.

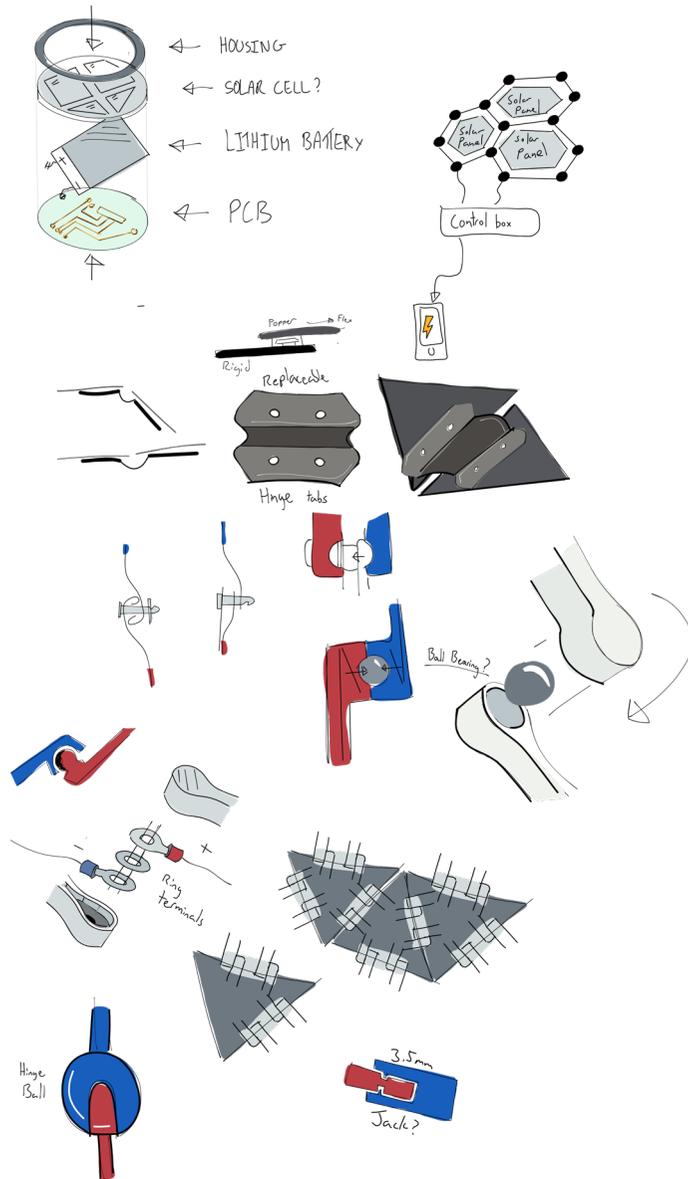
The flexibility of thin-film panels provides durability that rigid panels can't match is a large sheet of crystalline silicon. Some form of articulation is required to ensure the mono/ polycrystalline panels are able to be as durable as needed whilst still maintaining their approx. 21% efficiency.

For solar cells to operate at peak efficiency they want to be facing 90 degrees to the Sun, when the airmass value is closest to 1. This ensures the largest value of solar flux meets the panels.

The way to ensure this is to have as many of the panels facing the top of the pack assuming the majority of the hiking is done during peak hours.

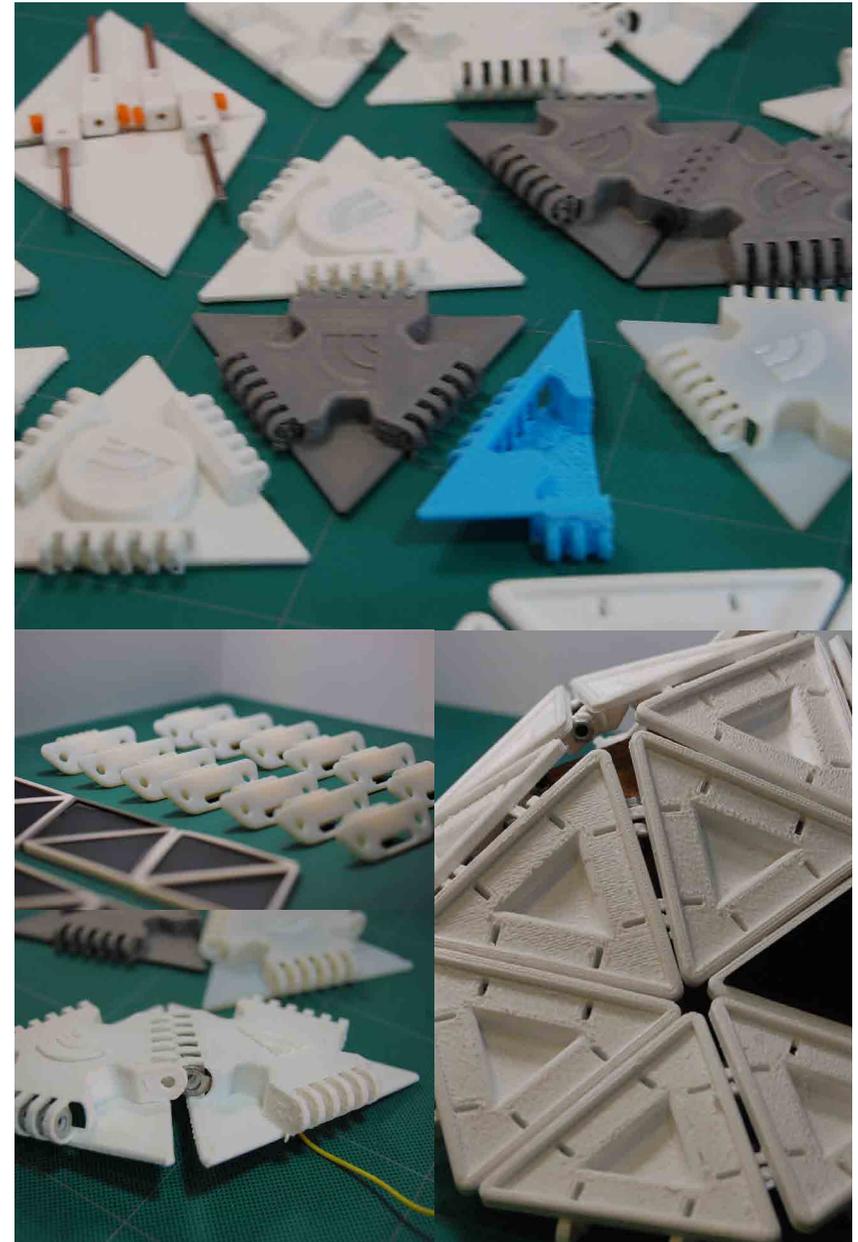


# INITIAL SKETCHES



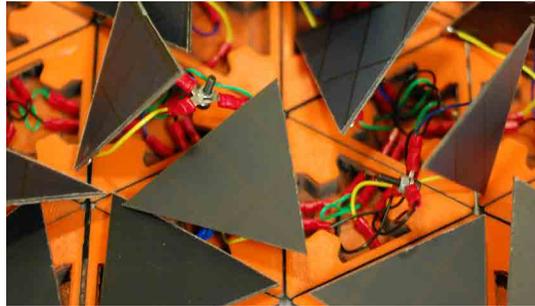
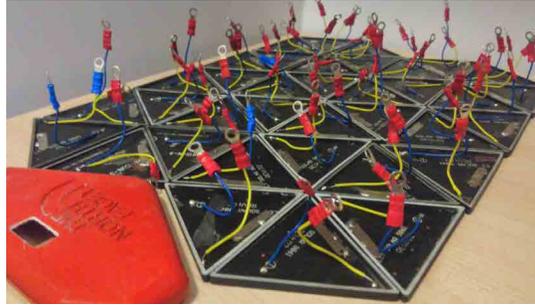
◁  
Project notebook hinge ideation and sketches.

# HINGE PROTOTYPE



3D printed hinge prototypes





## TESTING & BUILD

The shell was 3D printed in ABS for its strength and impact resistance, the top shell casing was resin printed for accuracy.

All of this was fitted to a North Face Terra 65 Backpack, used as it is their popular entry-level pack.

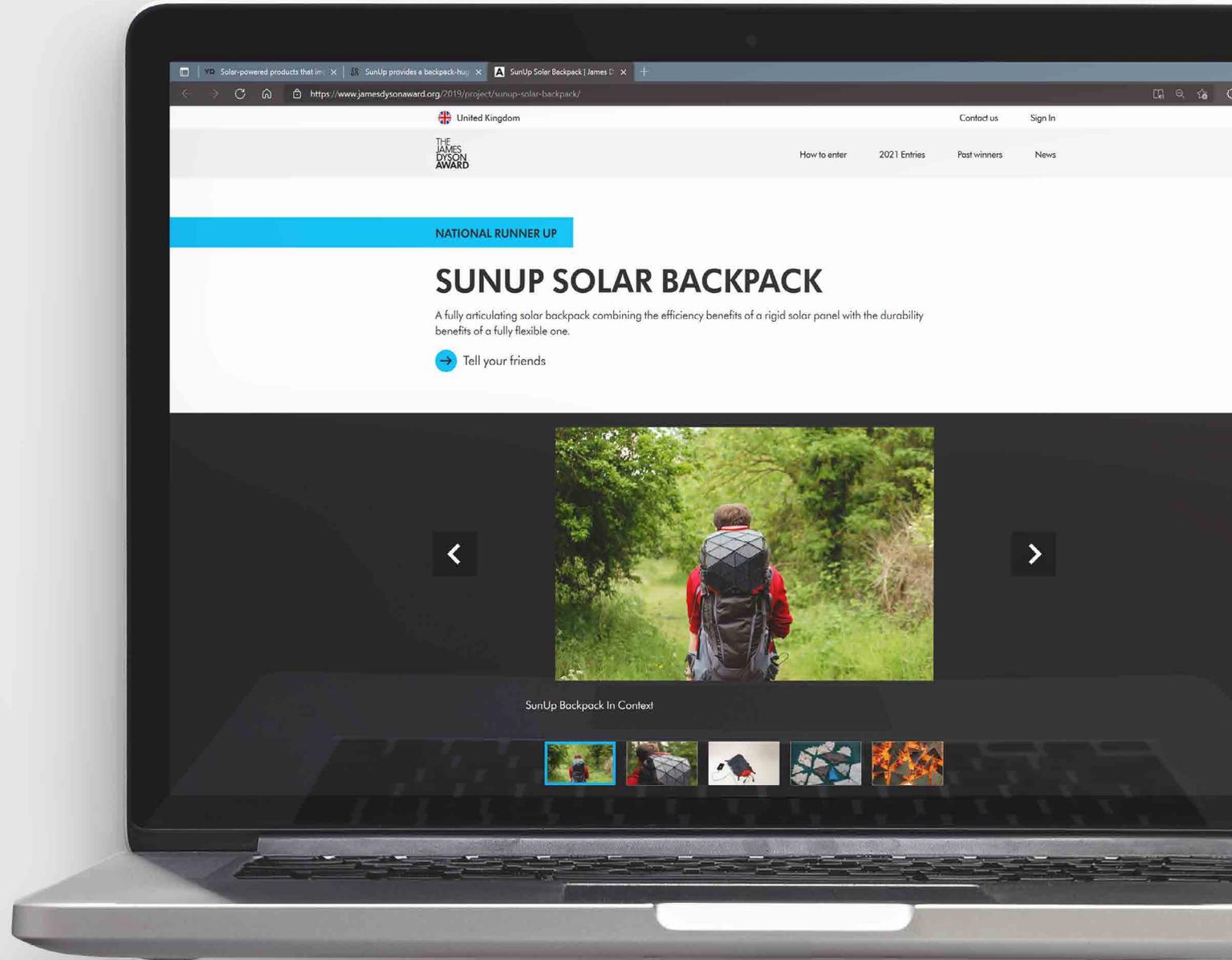
The final build utilised a series of 200ma Sungold solar cells, an off the shelf BMS system & an LCD.

# FINAL PRODUCT

Overall the final project was well received. The clients (The North Face VFc) were very happy with the final result.

The final project came runner up in the Dyson Award, longlisted in the Dezeen awards and featured on Dezeen and Yanko design's websites.

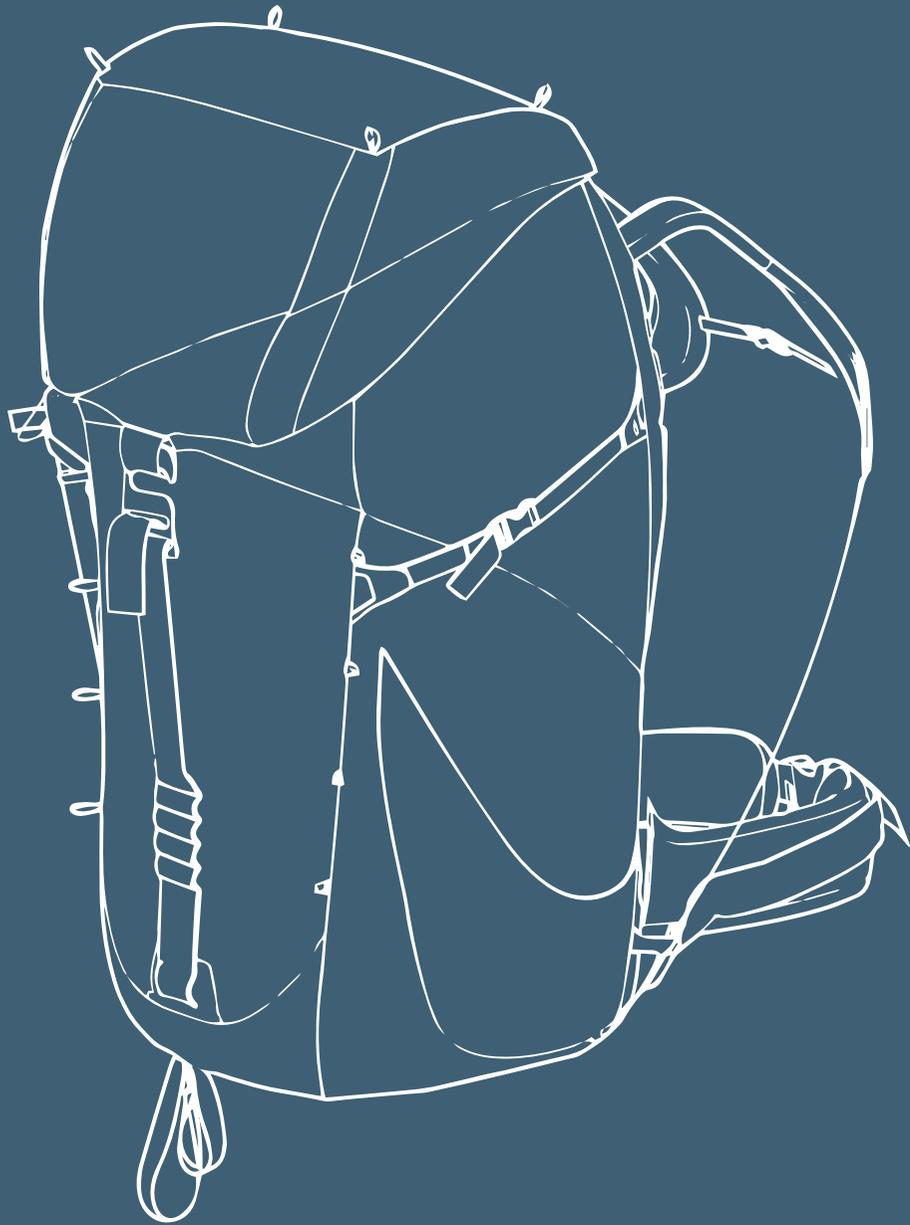
The pack was tested on several expeditions after final graduation, including a kayaking trip to Sweden.



# PATHFINDER BACKPACK

Designing, modelling and rendering a 70L backpack.





## + BRIEF

The benefits of involving 3D design at the early stages of a project can be a greater understanding of panelling, visualisation of how it would look loaded up and in the environment, a better grasp on scaling and quick and easy hardware, colour & fabric changes. This project should utilise 3D modelling and rendering on a backpack concept throughout the design phase.

## + OVERVIEW

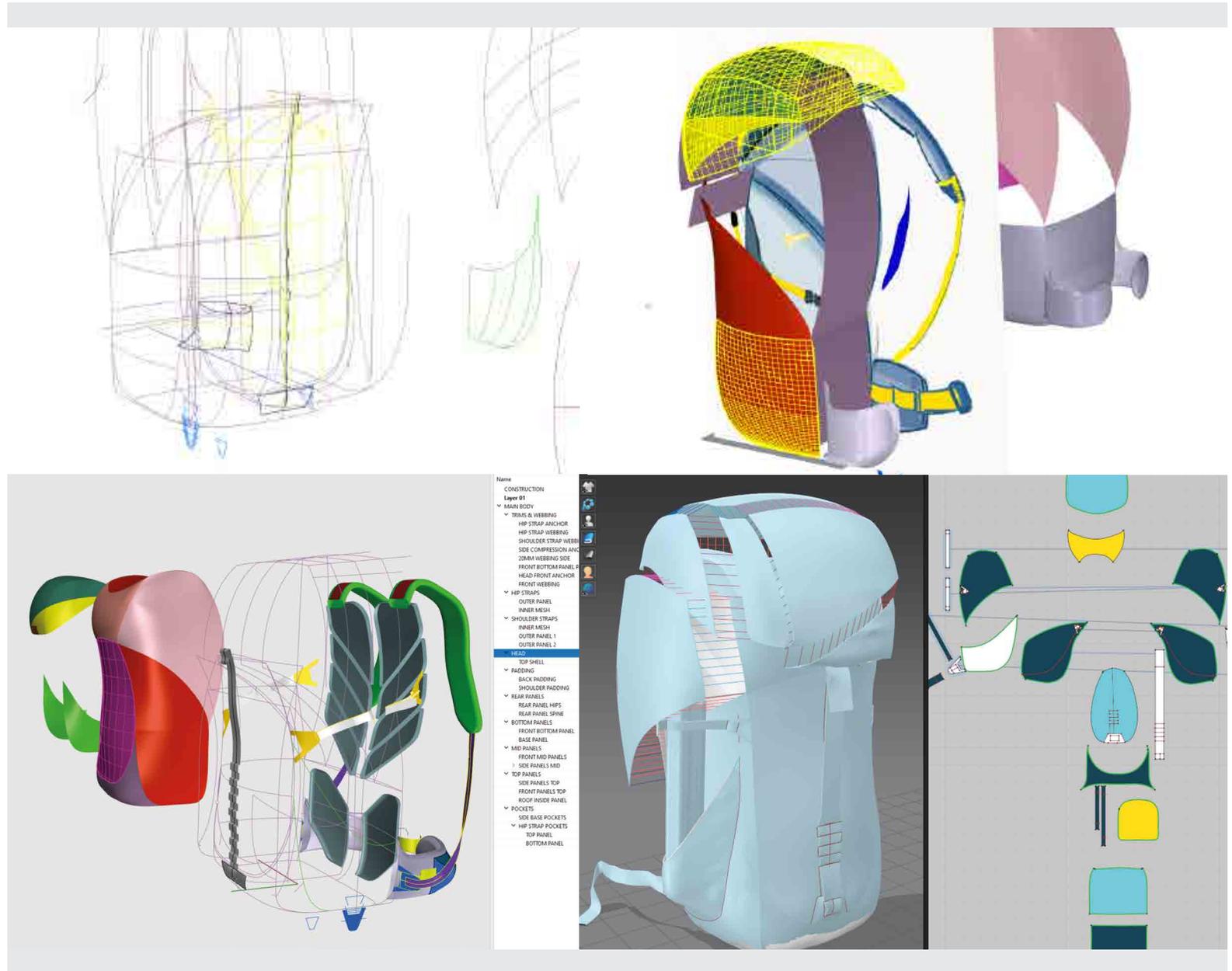
70L backpack with simple G-hook fastening system. large side pockets for poles and bottles, loops for ski poles, extra webbing loops running the length of the frame for customisation options. Modelled in rhino & marvelous designer, rendered in Keyshot & Blender.

# PATHFINDER IDEATION



Digital sketches of the pathfinder backpack. Exploring different options for front of pack features.

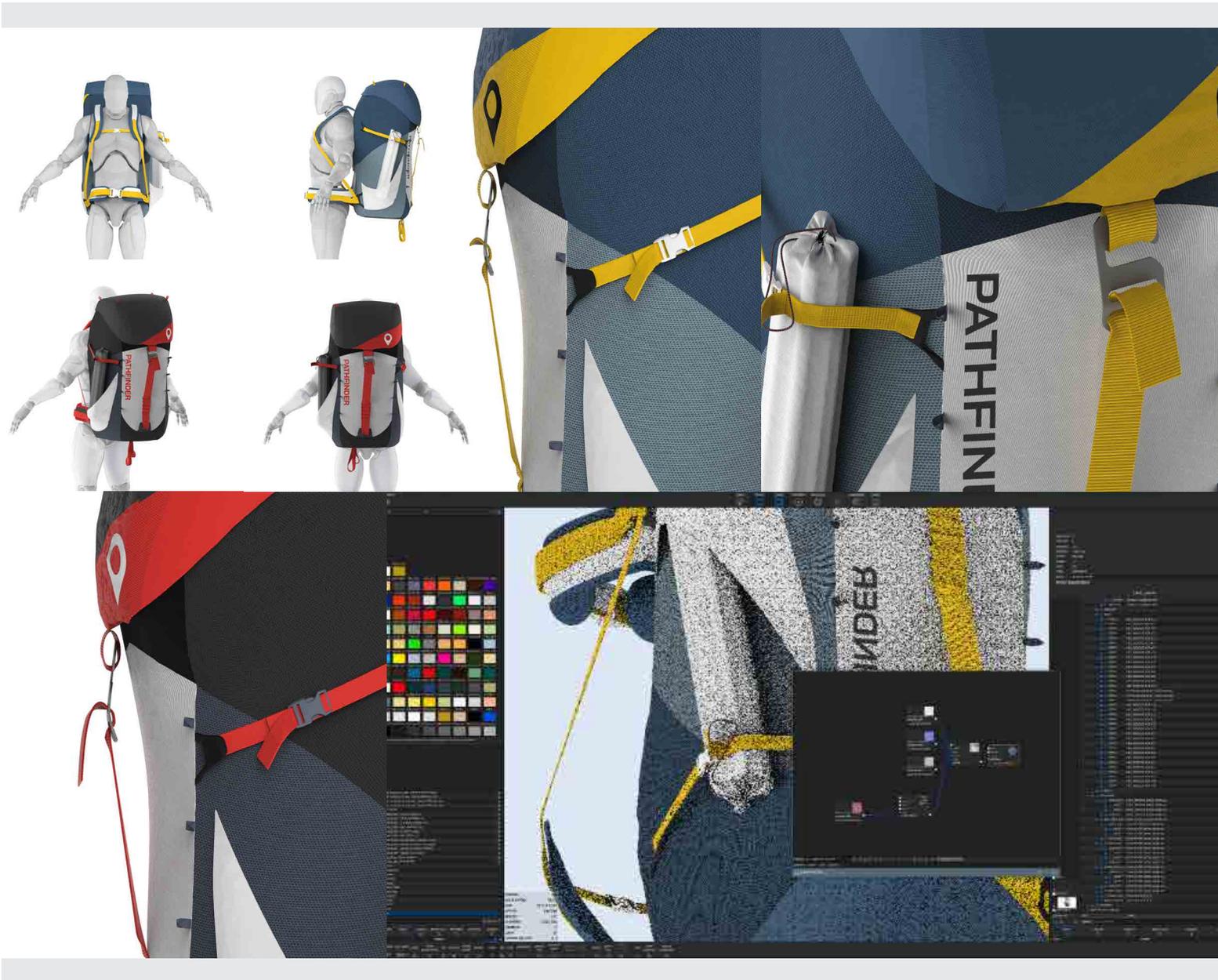
# MODELLING & REFINEMENT



Modelling in Rhino, initial sketch lines directly from drawings, building panels out from side views.

Taking panels and stitching them together in CLO3D/ Marvelous Designer for cloth simulations.

# PATHFINDER IDEATION



Keyshot C&M design for  
pathfinder backpack.



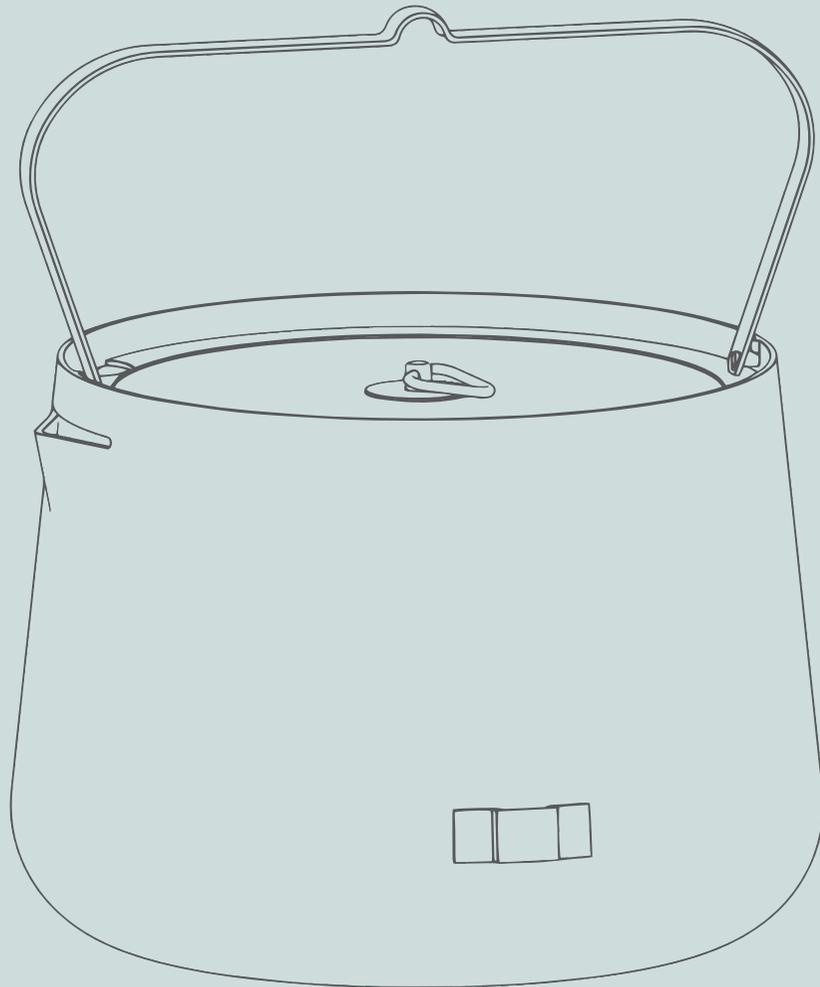
Final concept product  
visualisation in Blender.



# HIKING KETTLE

Titanium Hiking kettle inspired by japanese outdoor design.  
Packs down with





## + PROBLEM

Hiking kits are getting more and more isolated. You buy one cook system and it only works with their brand of Gas, their brand of stoves and their brand of accessories.

This leads to kits that can only really be taken on a particular type of trip, and no others.

## + BRIEF

To create a cook kit that provides the utility of a kettle for hiking but also has the functionality of a full camping kitchen suitable for multiple trip types. It should also be compatible with most standard gas canister sizes.

## + OVERVIEW

This titanium hiking cook kit was designed to all pack neatly up into the large kettle. Be lightweight, durable and provide all the equipment required.

It includes a large 1.5L pot/kettle, frying pan/plate, Small pot/mug and has room to fit a standard 250g gas canister.

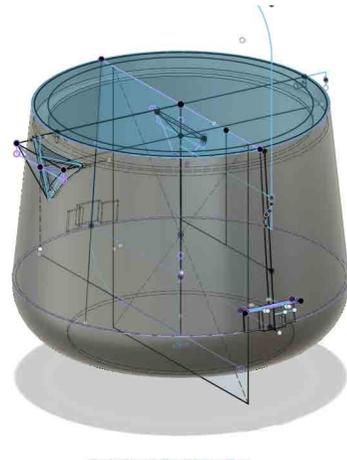
# IDEATION & MODELLING

## INSPIRATION



Taking inspiration from the clean japanese design aesthetic.

## INITIAL MODEL



Integrating the styling with the current standards for canister size and a more ultralight hiking style.

Modelled in Fusion 360 and rendered in Keyshot with a custom texture.



## REVISED MODEL



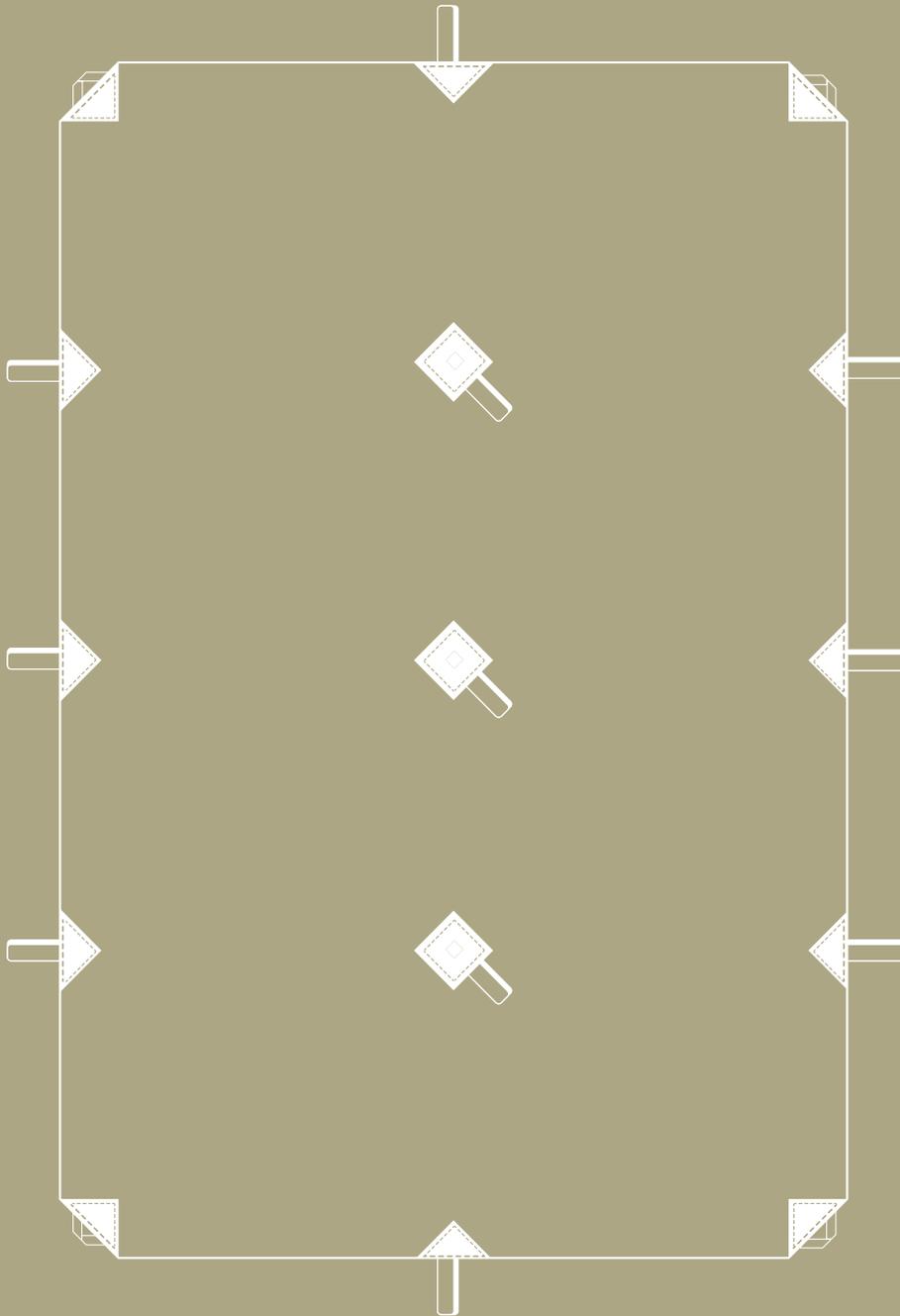
Improved “lip-less” design to allow use as a traditional pot as well as a kettle. Increases overall use cases.



# TARP PROJECT

Ultralight Tarp Mini-Project for hiking & Bikepacking





## + BRIEF

This project was a material investigation into Kerlon 1200 30 D High Tenacity Ripstop Nylon and its potential use cases in other ultralight shelters.

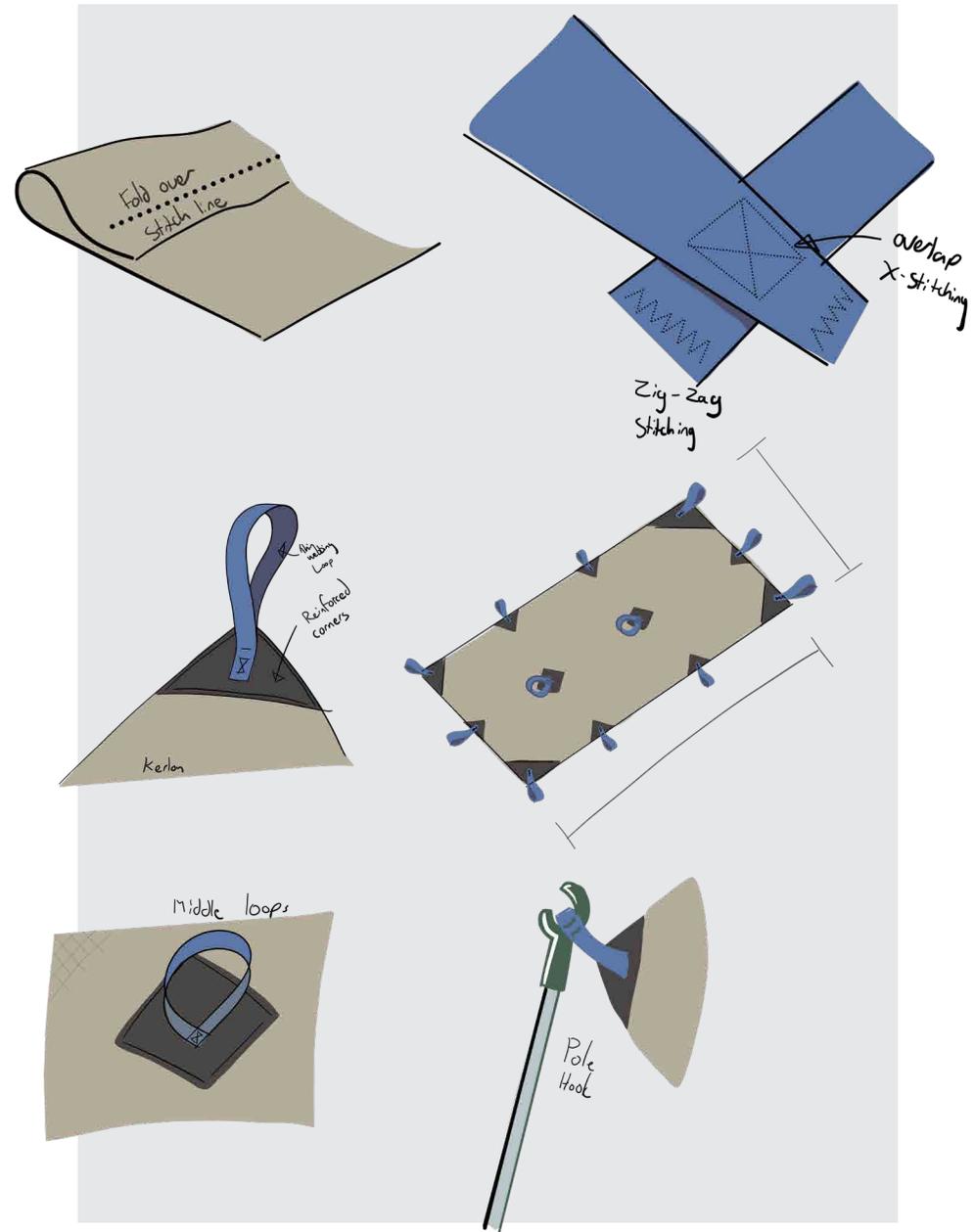
## + OVERVIEW

A fabric Kit was purchased from the tent manufacturer Hilleberg to construct an ultralight tarp which utilised the fabric's natural slight stretch with reinforced groundsheet material (70D Nylon, triple-coated polyurethane) and thin profile webbing.

# EXISTING PRODUCTS



# DESIGN FEATURES



## SEWING & BUILDING



Reinforced Zig-Zag stitching around the webbing attachments.

Thicker black Kerlon patches reinforcing the webbing loops.

Initial testing showed great waterproofing on the tarp, loops hook nicely and provided enough shelter to cook under in the usual peak district weather.



## FINAL PRODUCT

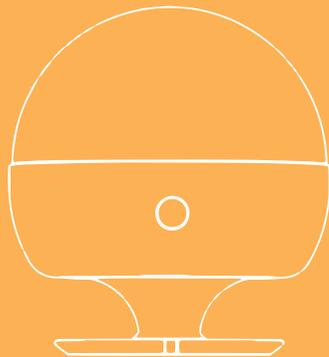
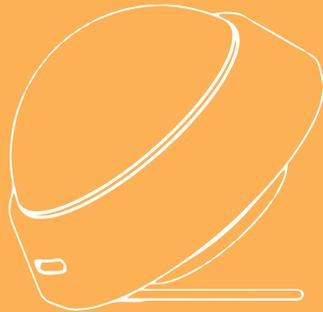




# LUMII

Solar Technology International lantern redesign project.





## + PROBLEM

One of the projects whilst working for Solar Technology was redesigning their existing Lumi light. The original was a large bulky, plastic lantern that whilst fit for purpose wasn't very user friendly, didn't fit in your hand and wouldn't sit flat on a surface.

## + BRIEF

Increase the functionality of the lantern by allowing it to be used on a table, angled or hung from the ceiling. It needs to be rechargeable so as to be used handheld or cabled to be hung from the ceiling.

The target use case is with the Hubi power system for camping & caravanning so needs to be compact and take a USB 5V charging input.

## + OVERVIEW

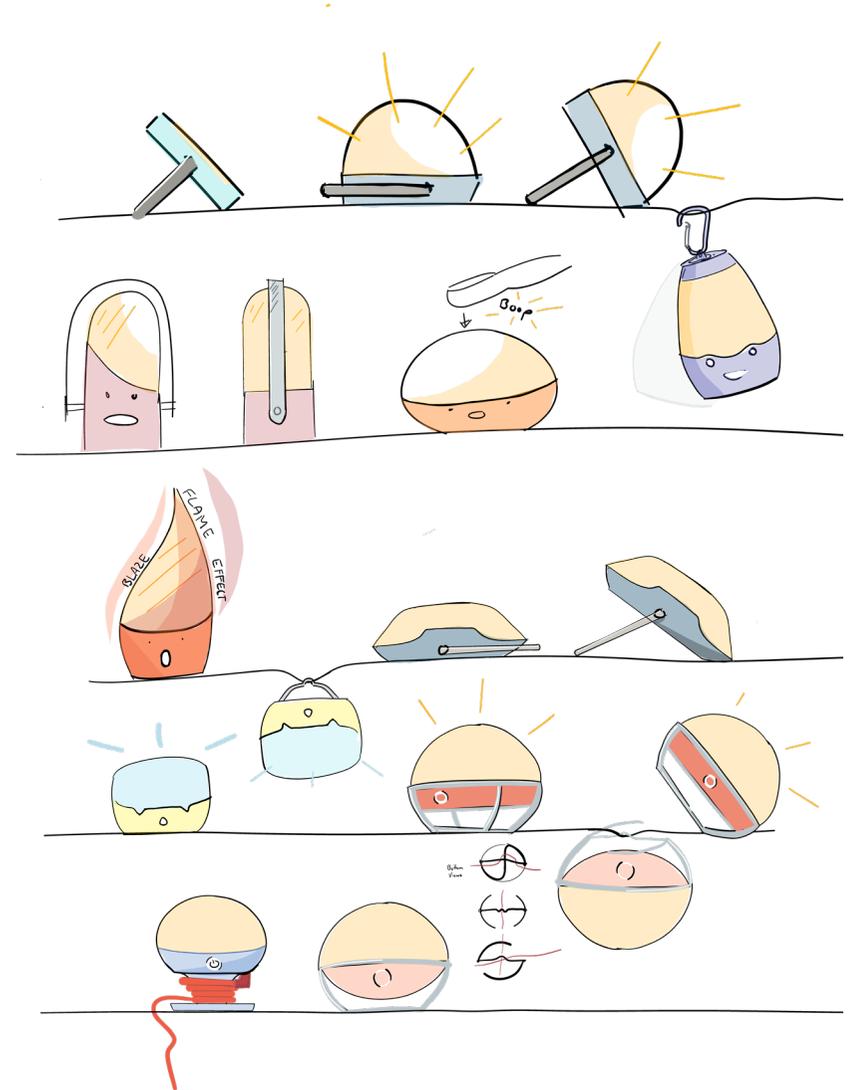
Lumii (Lumi 2) was a redesign of the Lumi 1. It was designed to be a compact, rechargeable lantern for use when out hiking, camping or caravanning. It would be accompanied with the Hubi Power system and provide off-grid lighting. These are the final 3 designs that were approved before the project ended.

# ORIGINAL LUMI

# INITIAL SKETCHES



◀ Original Lumi USB Latern.



Initial Concept Sketching before moving into CAD for primary development rounds.



# PRODUCT VISUALISATION



Product renders for internal pitching and design review.



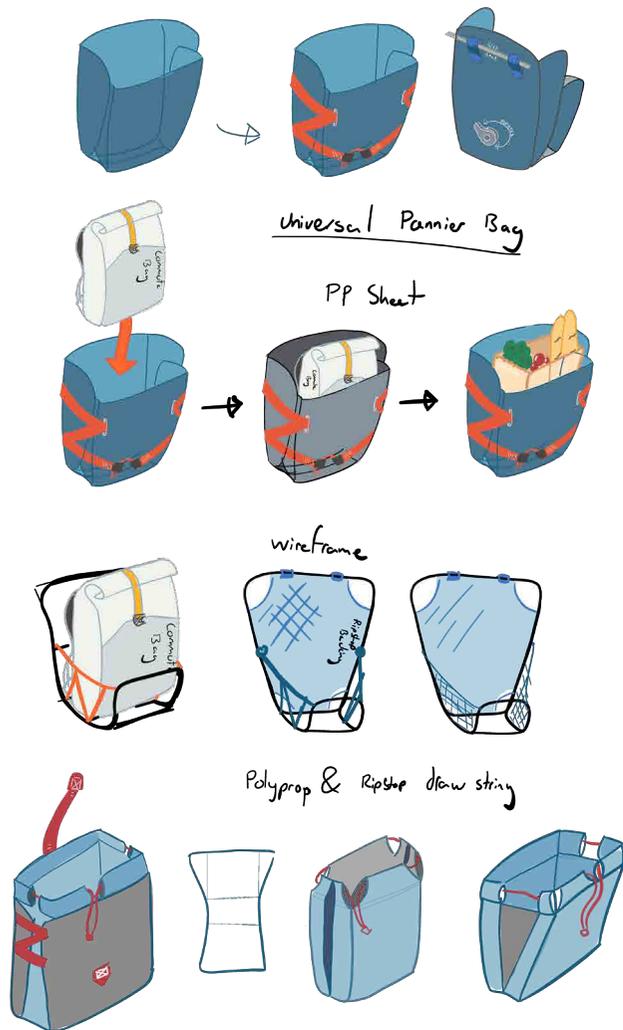


# UNIVERSAL PANNIERS

A project to build cargo panniers suitable for transporting a large variety of produce, gear and packs whilst still folding flat when not in use.



## INITIAL SKETCHES



Initial idea was a collapsible cargo pannier to be out of the way when not in use, but expandable to carry backpack/shopping/cargo

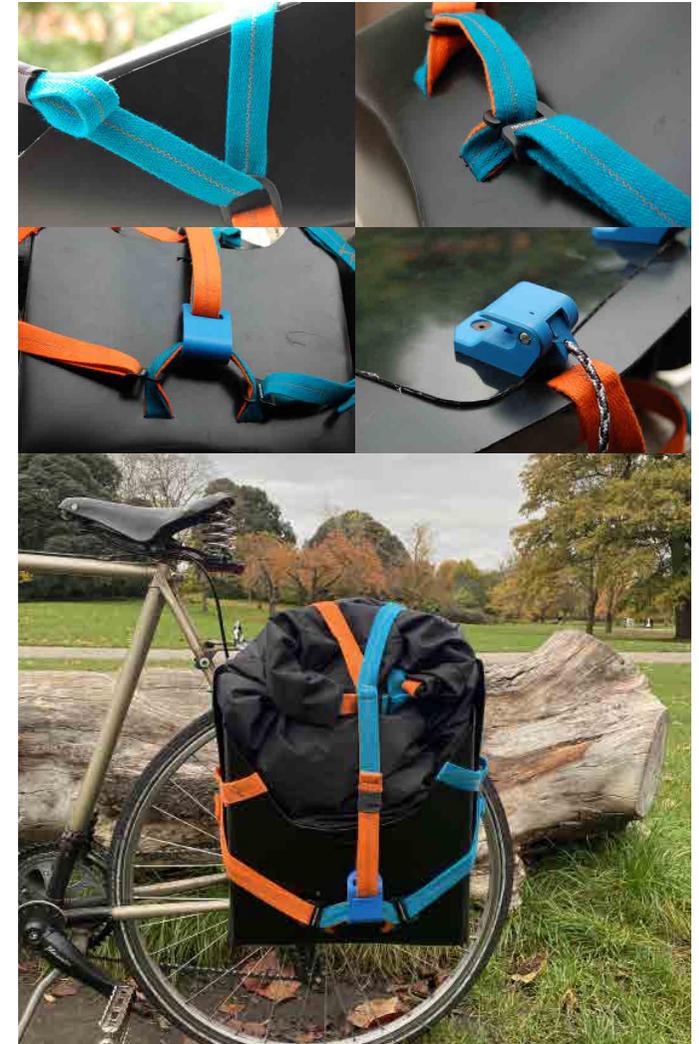
## PROTOTYPING



Seams folded double and reinforcements added to the top webbing for roll top.

Bright lining was added to improve visibility on the inside of the pack.

## FINAL PRODUCT



The final build incorporates PP outer shell and 2-tone webbing with zig-zag reinforcements.

The webbing is connected with Aluminium G-Hooks, pannier mounting made with 3D printed quick-release hooks.



# THANK YOU

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