



SR

Simon Roberts

Product Design Teacher

Industrial Designer

Design Portfolio

About Me



Education

Buckingham University

Independent Post Graduate Certificate in Education (IPGCE) with Qualified Teachers Status (QTS)
2017 - 2019

Loughborough University

Industrial Design and Technology BA (2:1)
2013 - 2017

St John's School Leatherhead

Design and Technology (A)
Physical Education (B)
Business Studies (B)
2007 - 2012

Qualifications

- Independent Post Graduate Certificate in Education (IPGCE) with Qualified Teacher Status (QTS)
- Diploma of Professional Studies (DPS)
- ECB Level 1 Cricket Coach and Training Method Workshop (Nets Management)
- England Hockey Coaching and Umpiring Workshop (2018)
- QA Level 3 Award in Emergency First Aid at Work (RQF) (2019)
- DATA Safety on Woodworking Machines (2020)
- Level 2 Safeguarding and working with children (2020)

Skills

Technical

- Adobe Illustrator CS6
- Adobe Photoshop CS6
- Adobe Premiere Pro CS6
- Axure RP Pro 7.0
- PTC Creo Parametric 3.0
- Solidworks
- Keyshot 5
- OnShape
- Fusion 360
- PTC ProDESKTOP 8.0
- Google SketchUp: 3D Design Software
- Techsoft 2D Design V1, V2, V3
- Autodesk Sketchbook Pro
- Makerbot
- Microsoft Office
- Google Drive/Classroom

Industry

- Brand Development
- Graphic Design
- Multi Material Workshop Skills
- Rendering
- Sketching Skills
- 3D modeling
- CAD/CAM skills
- Materials Knowledge
- Joint Construction and Application
- Carpentry

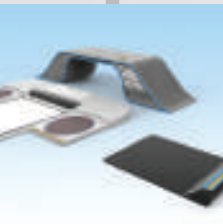
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01 Standby
Emergency response epipen



02 Achilles
Athritic knee support



03 Abode
Desk wrist and hand strain reliever (Carpal Tunnel Syndrome)



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GPS dog walking tracker



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Injection moulded promotional widget



06 Portable Camping Stove
BMW inspired

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A close-up photograph of a person's waist and hip area. They are wearing a blue, textured outdoor jacket with orange zippers. A black webbing strap is attached to the jacket, featuring an orange carabiner, a white EpiPen, and a pair of sunglasses. The background is a blurred green forest.

STANDBY

Emergency response
EpiPen for anaphylaxis
sufferers in rural
hard-to-reach areas

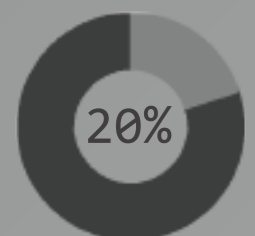
01 Context/Ideation

'Standby' is a GPS enabled EpiPen housing to aid rescue for those experiencing an anaphylactic shock in difficult to reach locations.

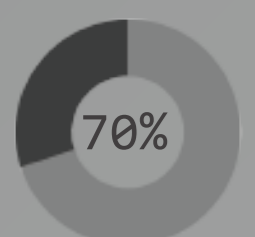
Utilising a government run emergency response satellite system known as COSPAS-SARSAT, precise coordinates of the patient's location can be determined, leading to the appropriate emergency response being dispatched.



Anaphylaxis can turn deadly in as little as 15 minutes



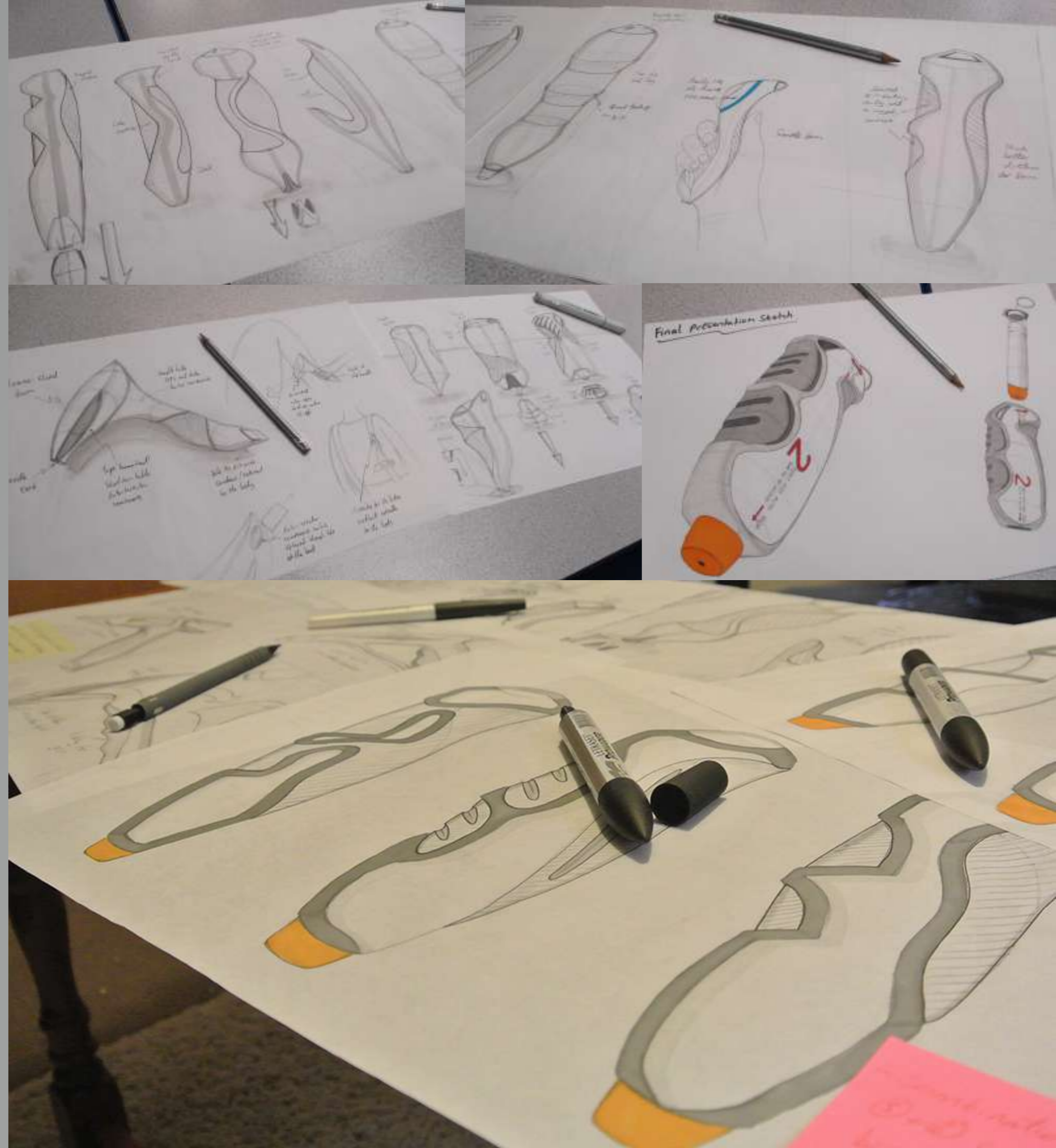
Over a 12 month period, 20% of all allergy related emergency hospital admissions were due to anaphylaxis



70% of inexperienced users administer an EpiPen incorrectly



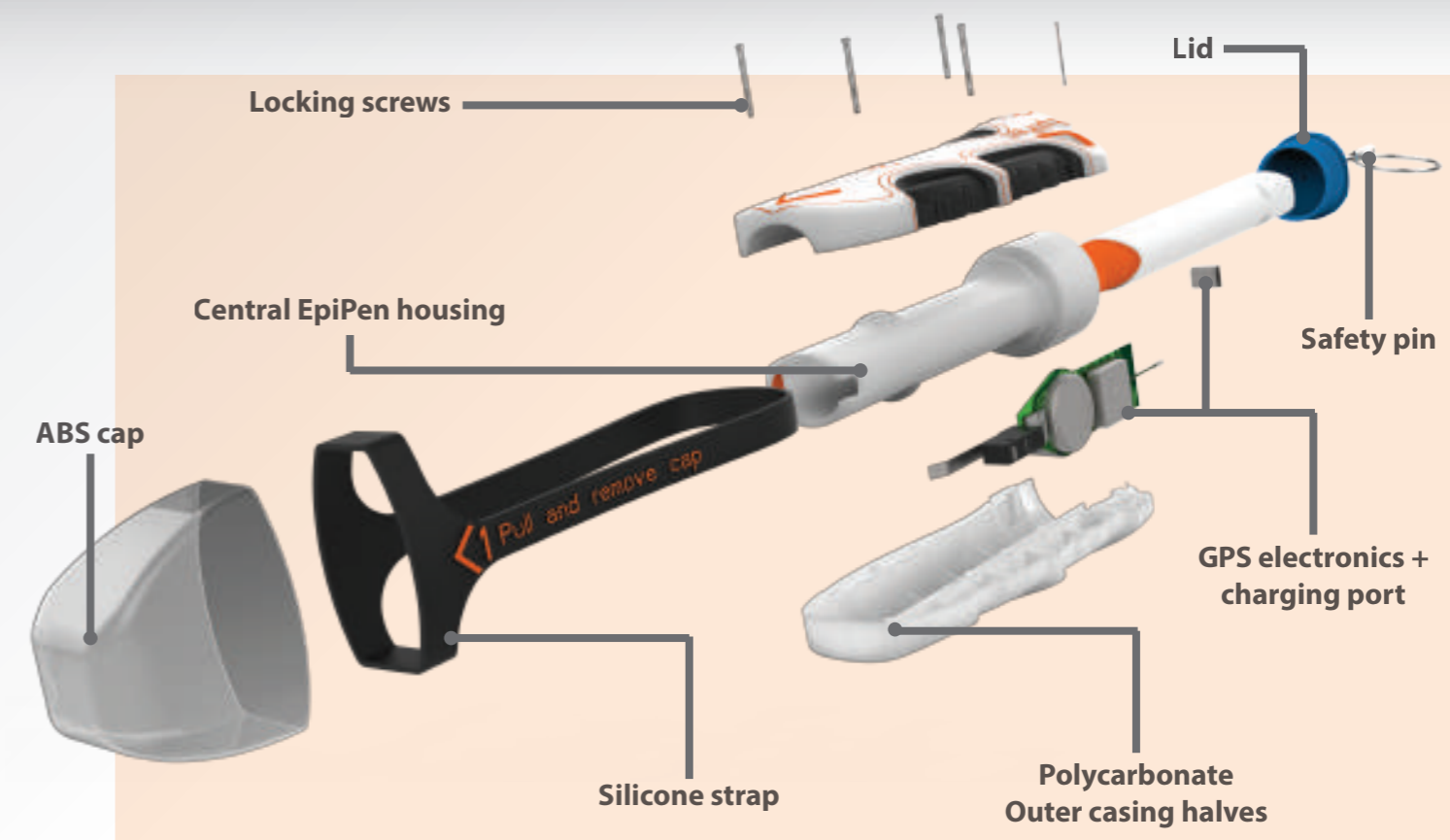
Over a 12 month period, 230,176 people were prescribed an EpiPen (1 in 283 people)



01 Modelling/Prototyping



01 Final Product



1 Pull and remove cap



2 Pull pin



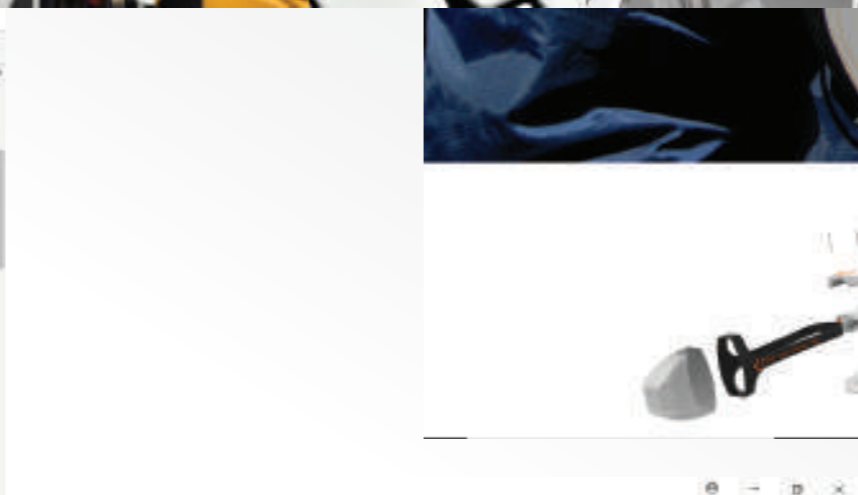
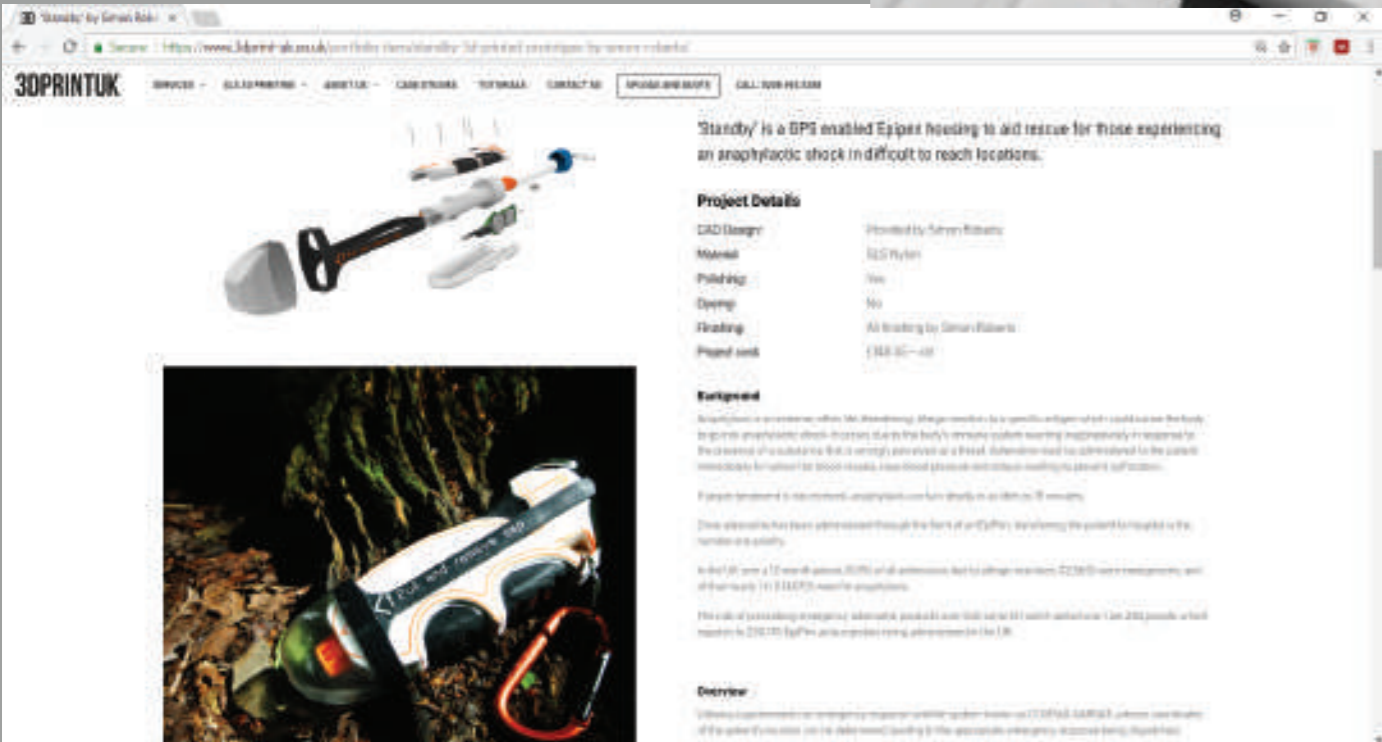
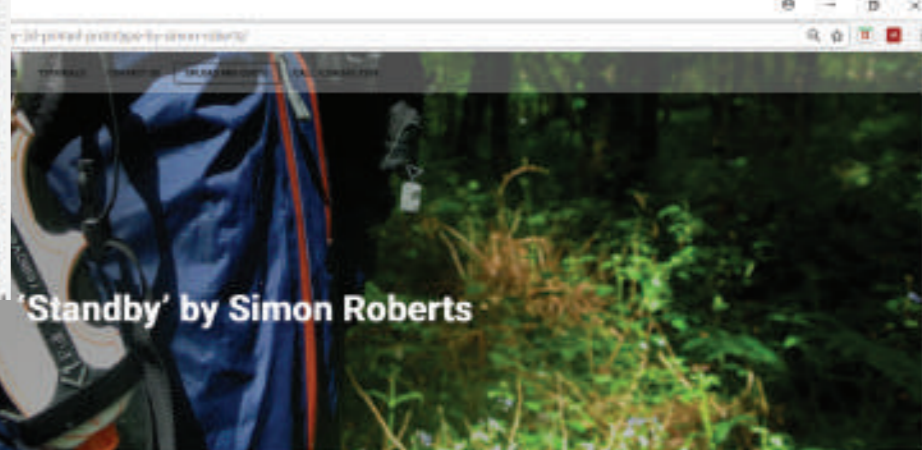
3 Inject into outer thigh, hold for 10 seconds. Emergency response signal is sent automatically



4 Text response confirmation of emergency response

01 Published Work

Standby has been published on the 3DprintUK website under their 'case study' section, showcasing examples of products and prototypes they feel best demonstrate the capabilities of their 3D printing technology.



<https://www.3dprint-uk.co.uk/portfolio-item/stand-by-3d-print-ed-prototype-by-simon-roberts/>



3DPRINTUK



Form fitting exoskeleton utilising prosthetic technologies and physical therapy techniques to help those who suffer from osteoarthritis within the knee.



ACHILLES

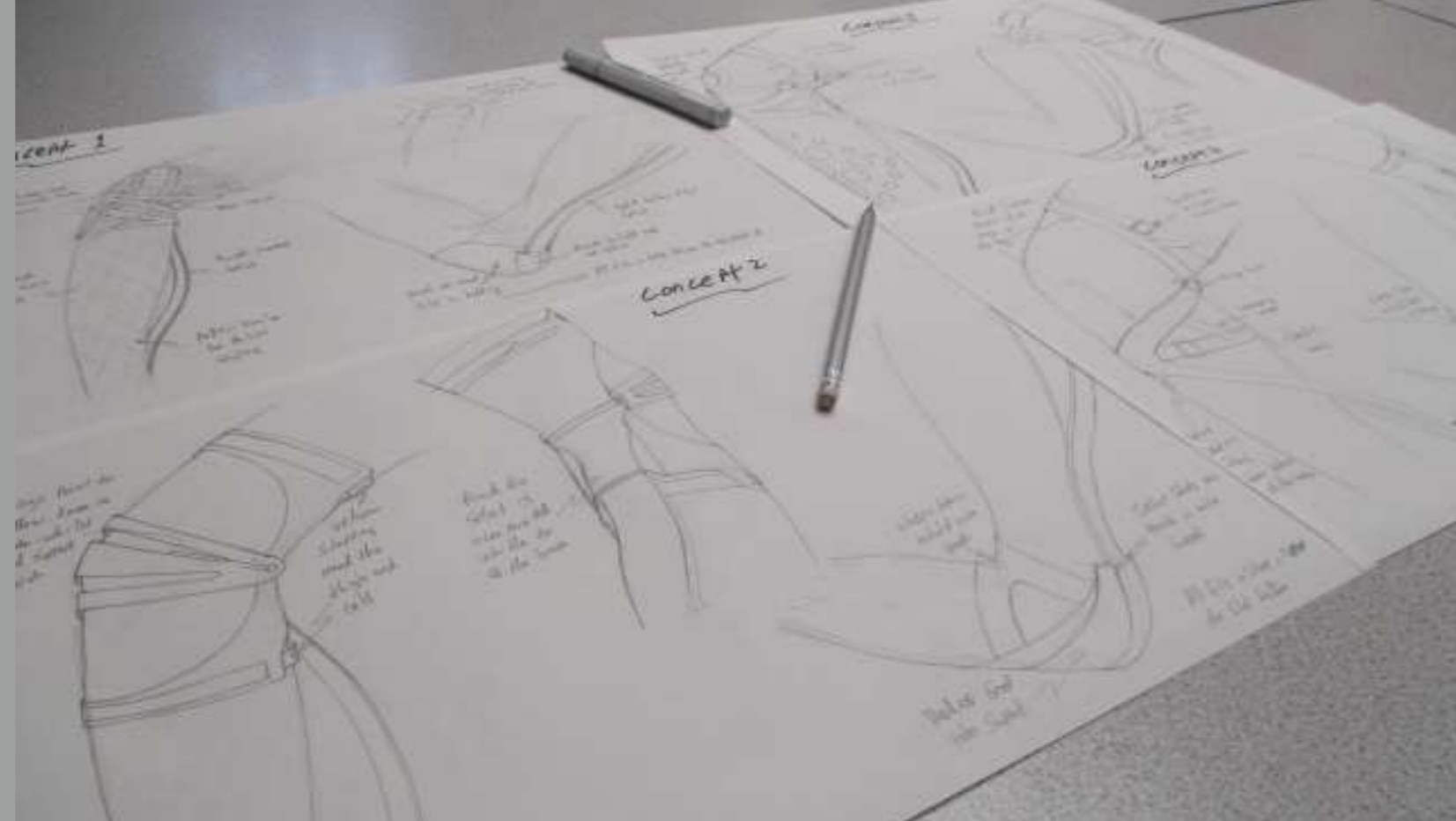


02 Research/Prototyping

Osteoarthritis is a chronic disease affecting the cartilage and surrounding bone in which the cartilage slowly wears away after prolonged use, causing difficulty and pain with movement.

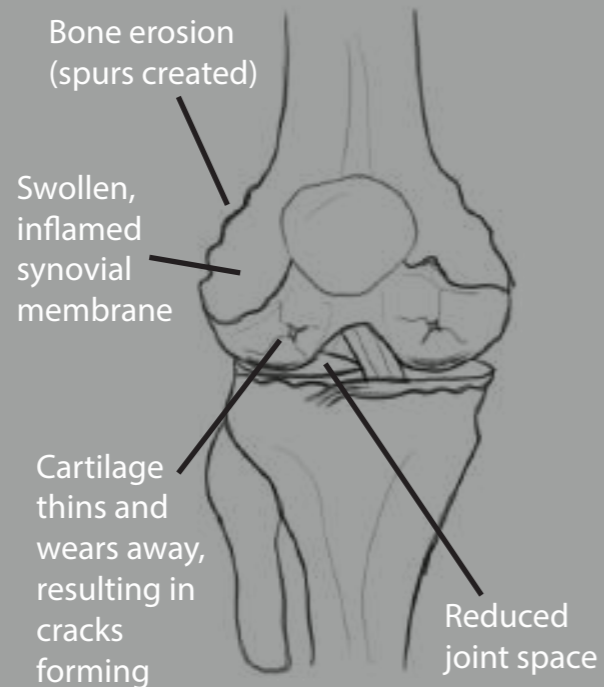
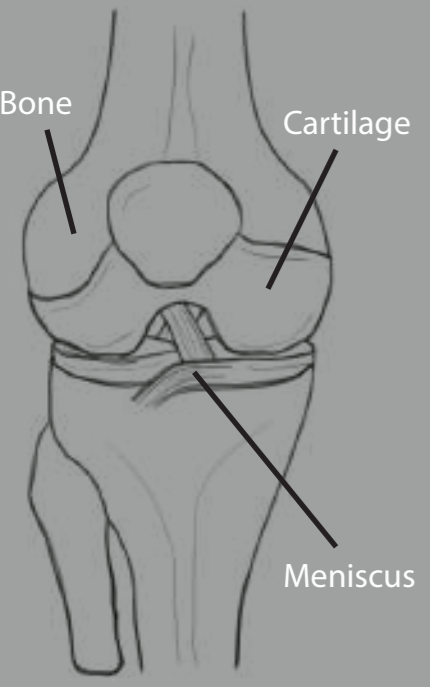
With over 4.71 million people in the UK suffering from the disease (18% of the population), it is the most common form of arthritis. Although treatments and medication exist to help prevent and deal with the symptoms, there is no cure.

Left untreated, swelling, tenderness, grating and a cracking sound can occur within the joint itself, causing great pain and discomfort.

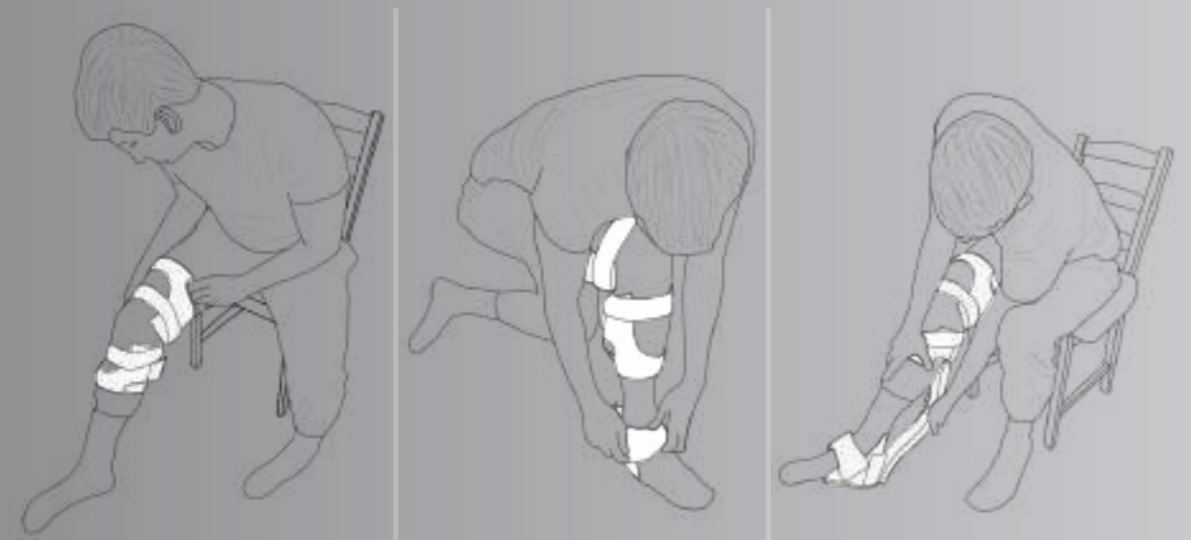


Healthy joint

Arthritic joint



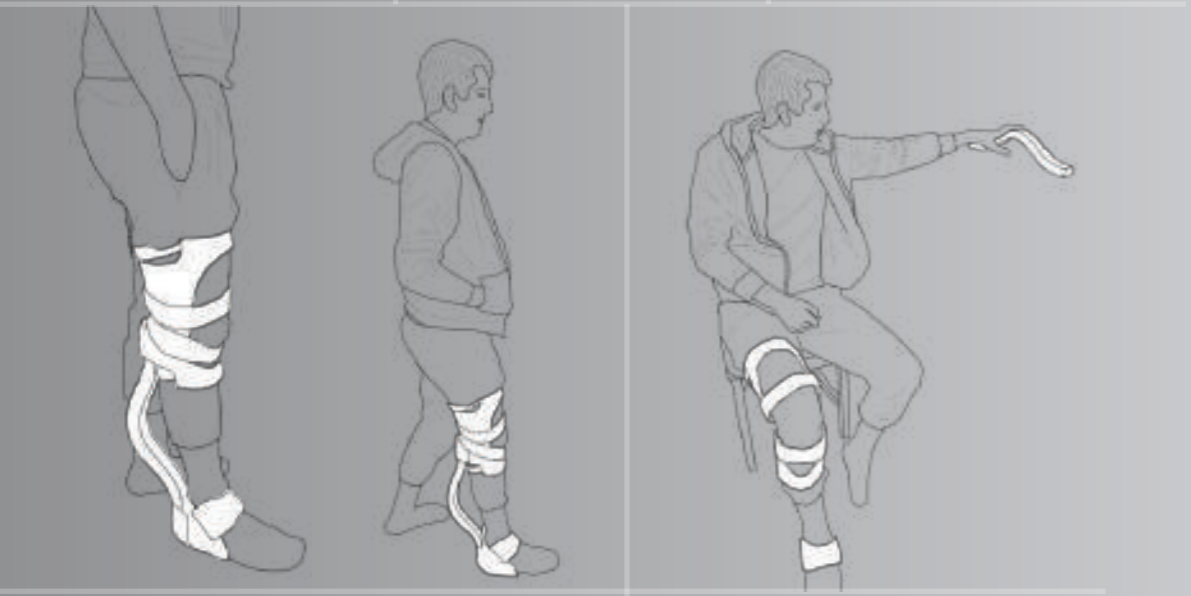
02 Final Solution



Knee brace applied and tightened using buckle straps

Foot inserted into ankle support. Held with elastic

Carbon fibre splint inserted into knee and ankle slots



Splint takes the weight of the user and supports the knee when walking

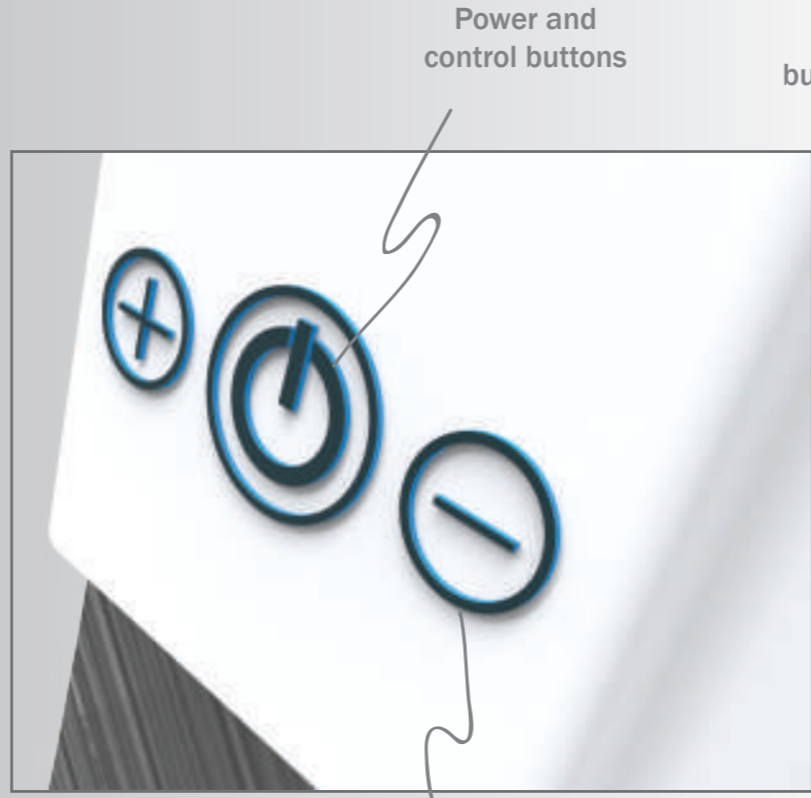
Splint and ankle support is removed when resting



TENS therapy unit activates via rear control buttons

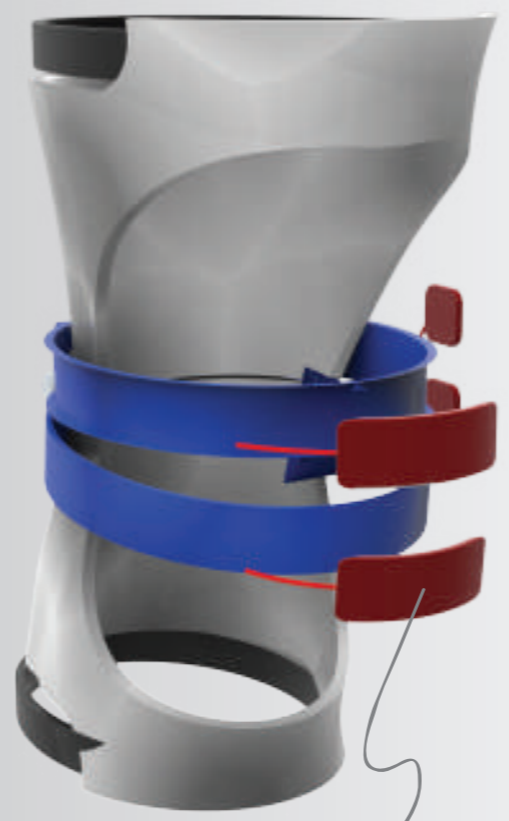
User adjusts intensity with + and - buttons until comfortable

Blood flow to the knee joint increases, reducing pain and helping mobility



Power and control buttons

Bright blue lights with buttons for indication



TENS pads stored underneath the brace section (2 one each side, 2 on TENS straps)

Leg brace buckle straps

Articulation point

Conductive tens pad straps

Moulded plastic knee brace

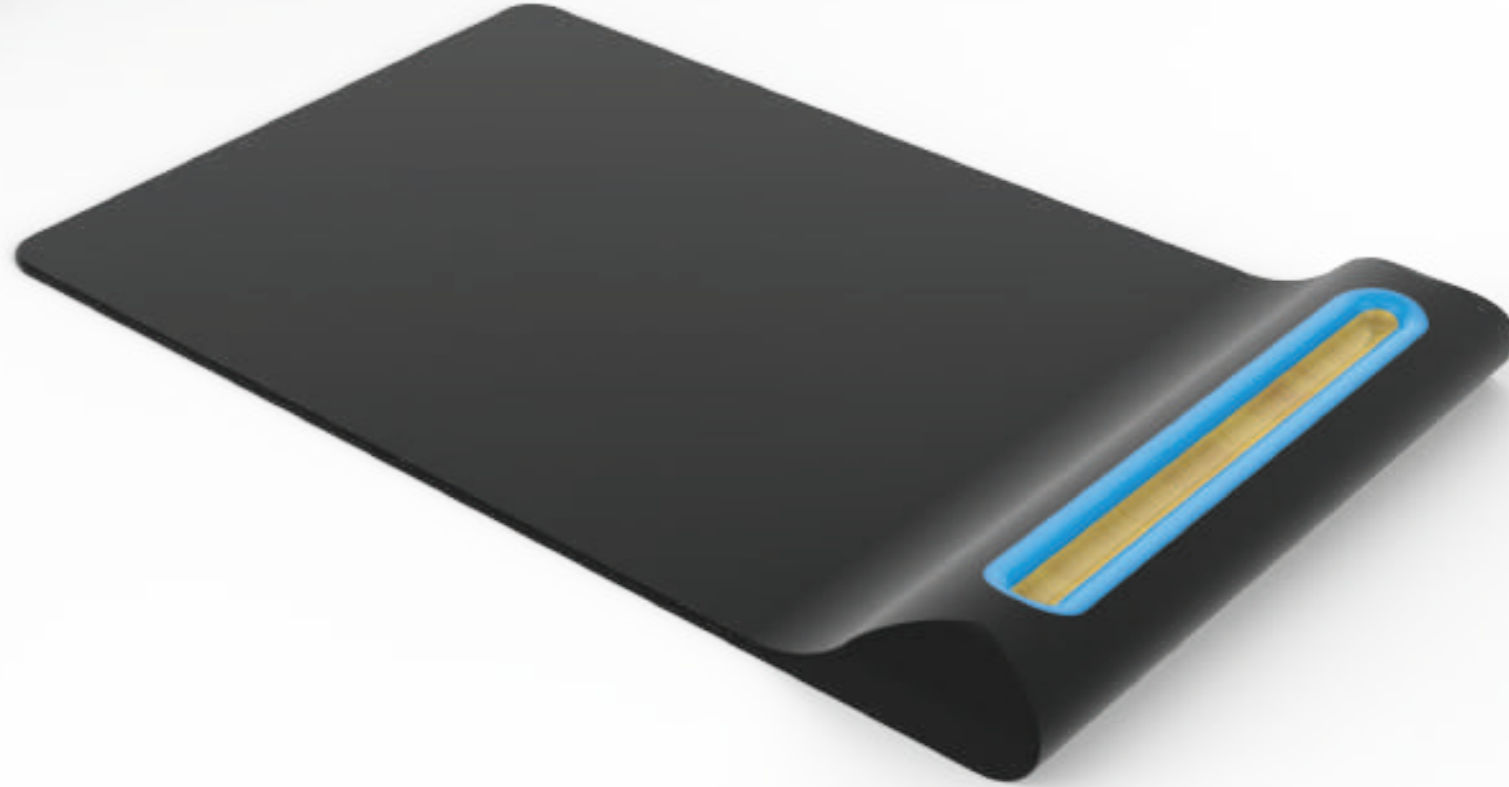
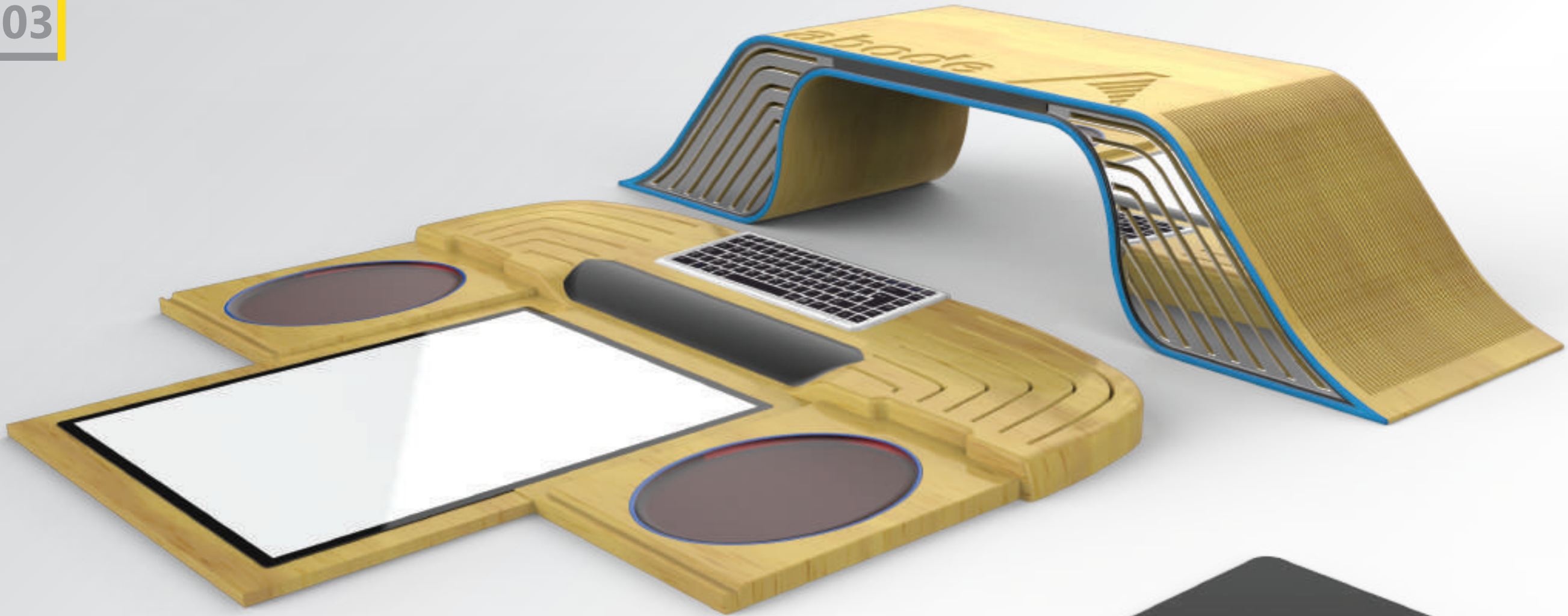
Carbon fibre support splint

Slot for splint (top and bottom)

Moulded plastic ankle support

Anhle support strap





A desk based organiser for graphic designers intended to reduce the effects of carpal tunnel syndrome through Far infrared heating technology. Also aids in reducing stress and anxiety levels through cooling fans and mood lighting therapy

03 Problem/Prototyping

Intensive static activities are increasing. Computers are becoming common place in the workplace, as a result leading to increased repetitive strain injuries and workplace stresses.

Currently, no protective measures are offered to workers suffering from RSI (repetitive strain disorder), with the most prevalent RSI based condition being Carpal Tunnel Syndrome.

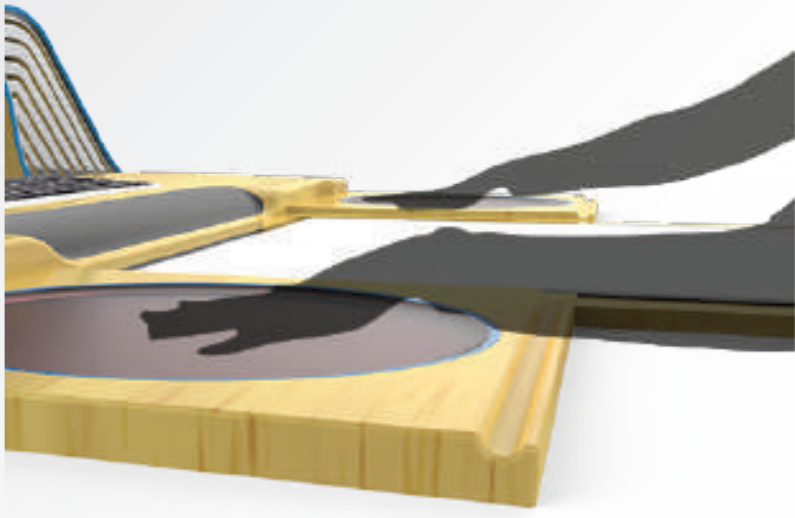
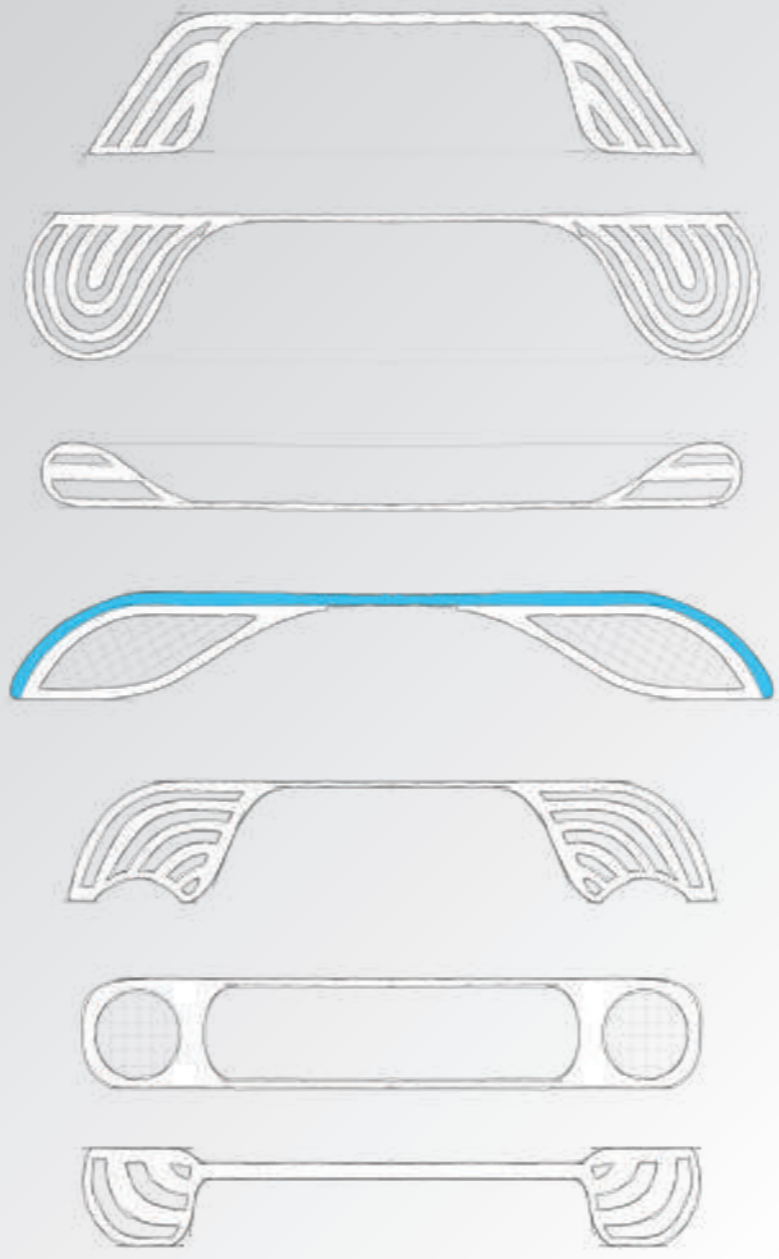
Often caused by repetitive use of the hand and wrist, activated by such tasks as writing and typing, with 260,000 new cases occurring each year.

£ £15.9 billion spent on workplace compensation each year

31 Highest number of days lost compared to any other work based injury - 31 days a year

Carpal Tunnel Syndrome

Nerve is compressed at the wrist leading to stiffness and pain.

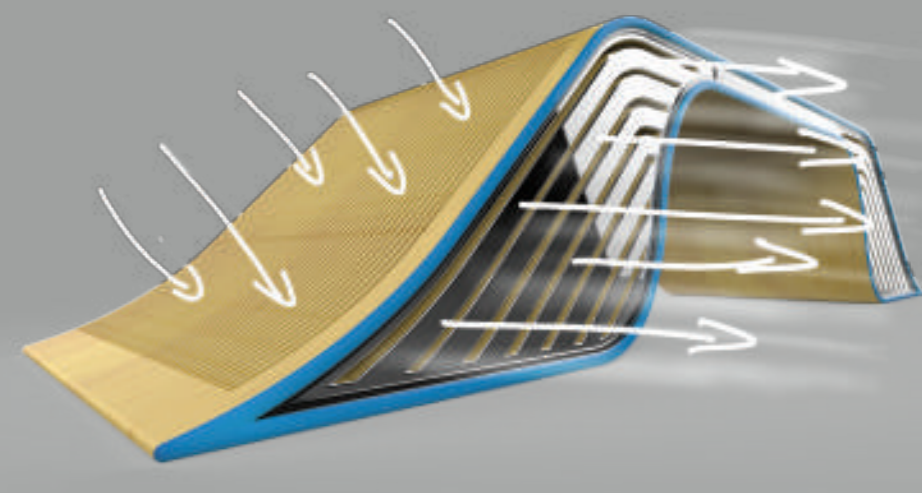


Hands on pads, Far Infrared heat penetrates the skin into the blood, easing the pain

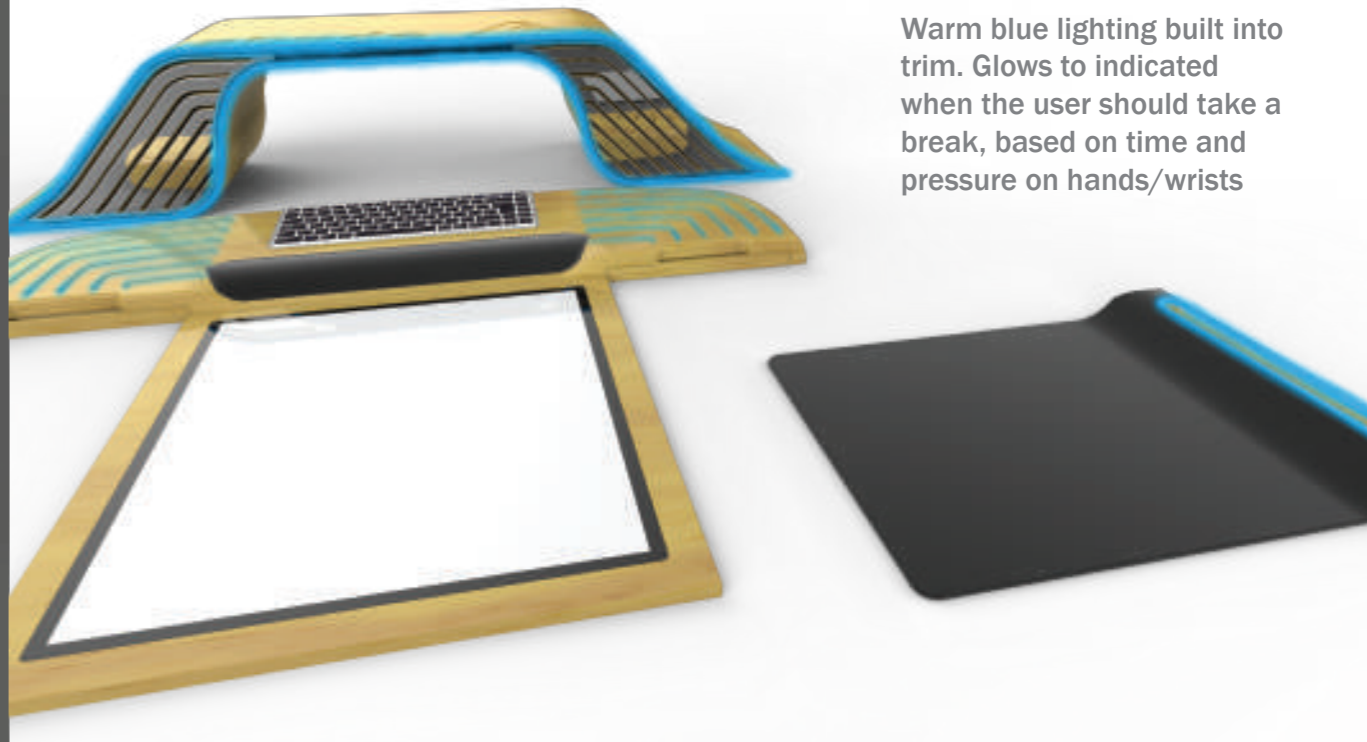
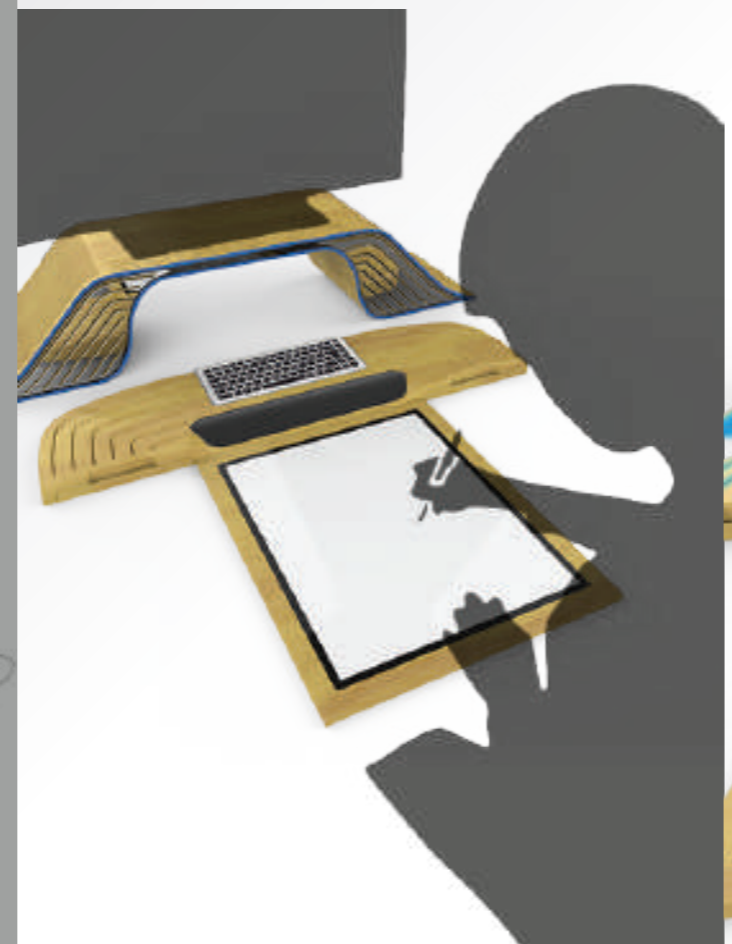
Estimate 10-20 minutes until pain is alleviated

Fans built into monitor stand regulating 21-22°C

Gradually cooling and calming the user



Warm blue lighting built into trim. Glows to indicated when the user should take a break, based on time and pressure on hands/wrists





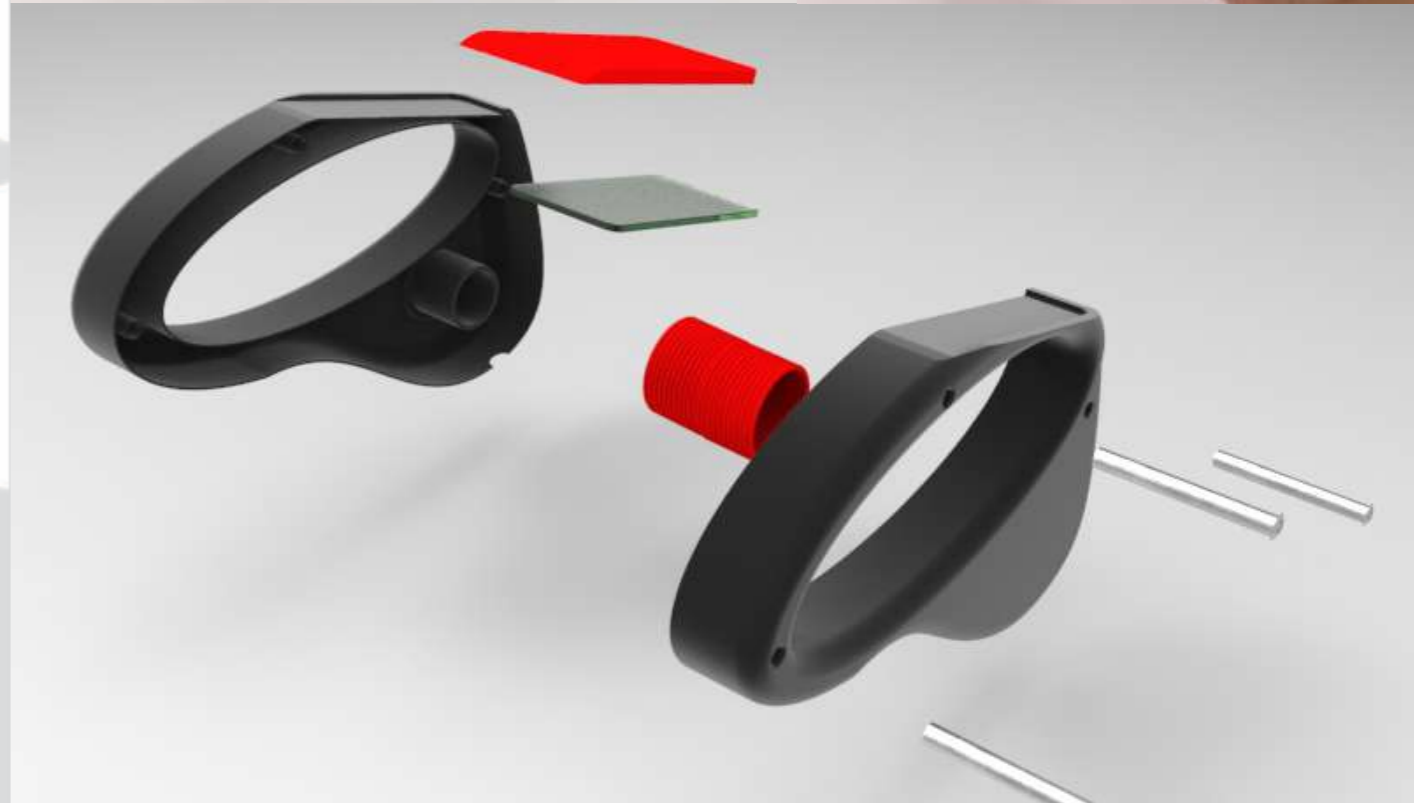
Retriever is a GPS dog walking aid in which walkers can track the location of their dog.

Using a GPS tracker within a retractable dog lead and a receiver within the bone shaped name tag, the user is able to know the exact location of their dog should they get lost.

There is also the ability to plan a route via the dog lead using the inbuilt navigation system.



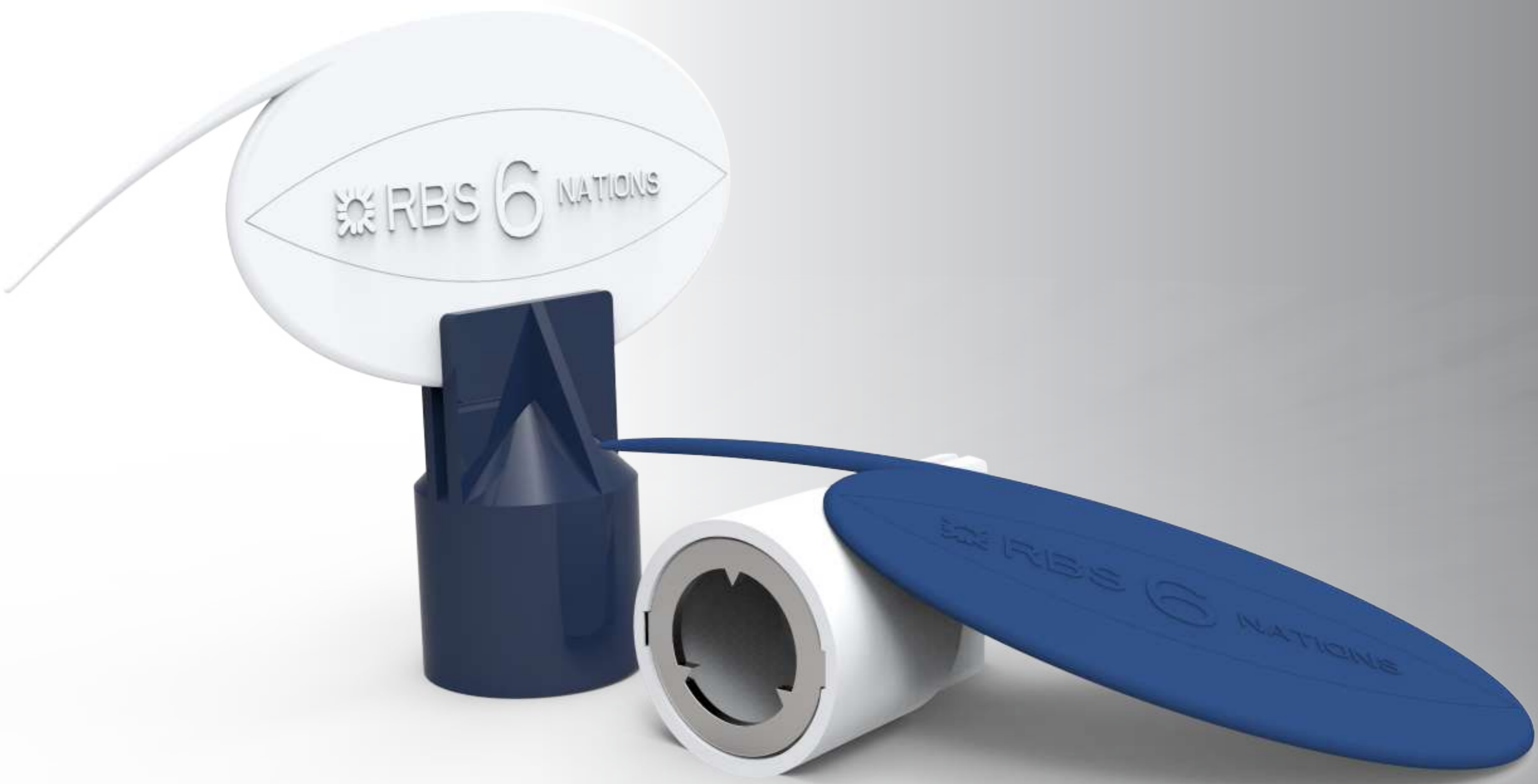
04 Ideation/Model Making



05

'6 Nations' Stud Tightener

Injection moulded promotional widget



05

Concept promotional widget designed to be a give away at corporate events and fundraisers.

The stud tightener resembles the shape of the '6 nations' rugby logo and can be interchanged with others to vary colour combinations.

Injection moulded through custom designed moulds with custom inserts



 **RBS**



NATIONS[®]

rbs6nations.com

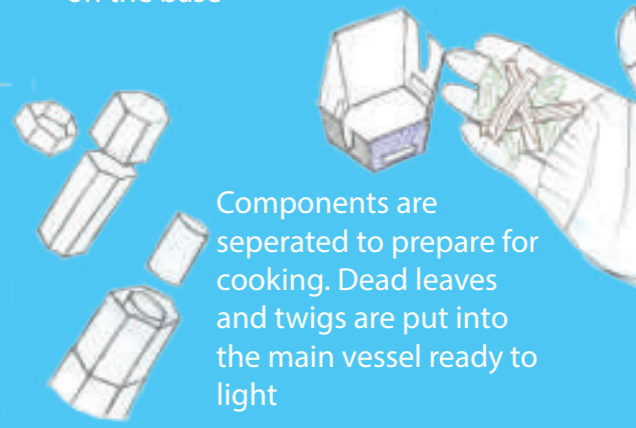
BMW i.



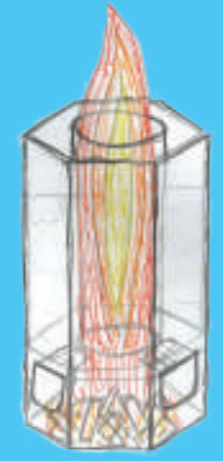
CAMP TECH



The product is inserted into the ground using the colapsable spike on the base



Components are seperated to prepare for cooking. Dead leaves and twigs are put into the main vessel ready to light



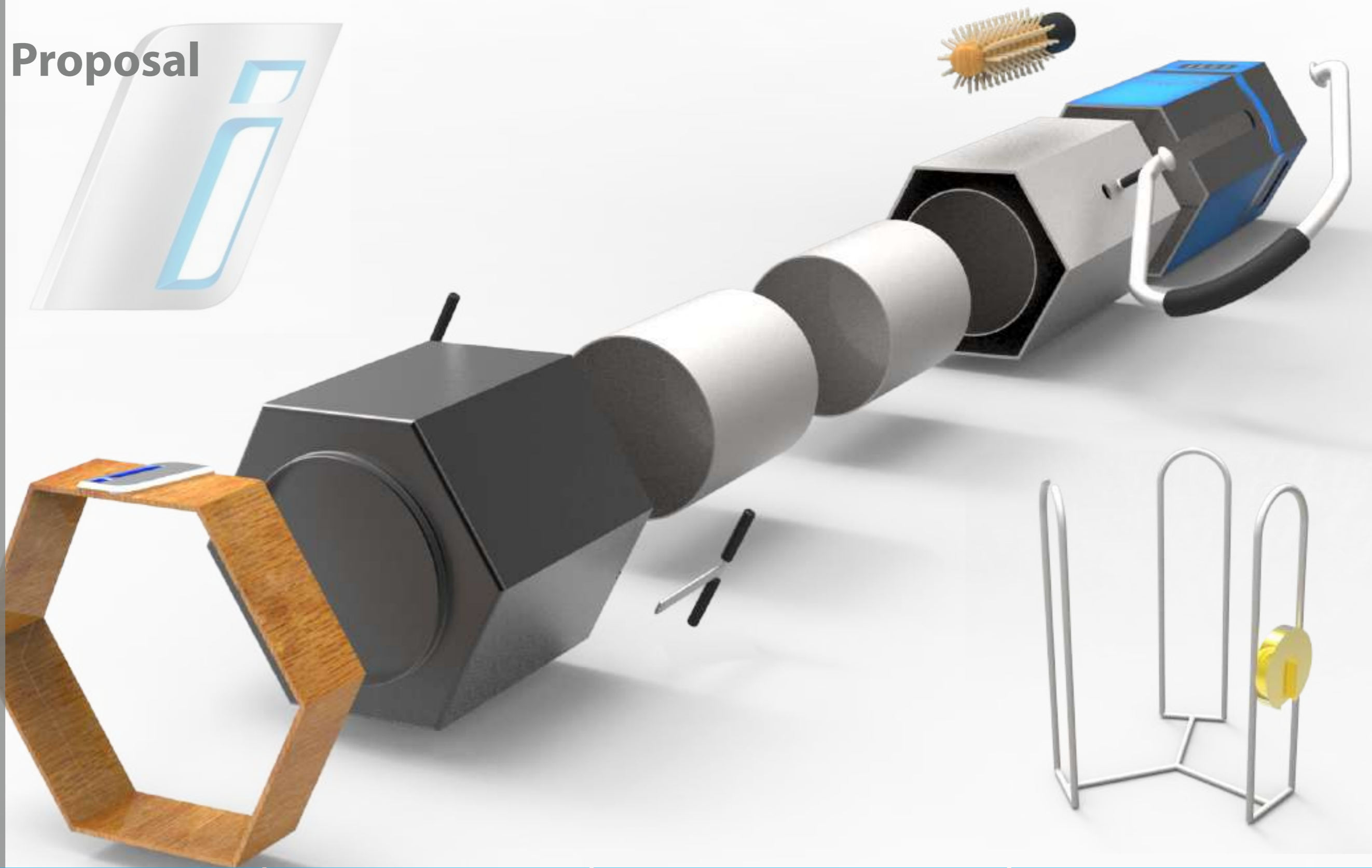
Dead twigs and leaves are set alight allowing water to be boiled and cooking to commence. Collapsable flaps at the side allow oxygen to enter, keeping the fire lit



06 Concept Proposal

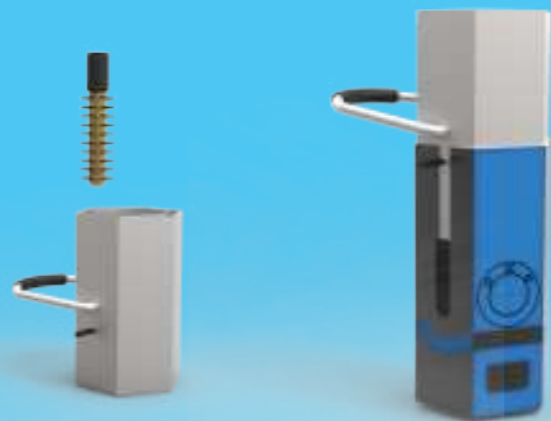
Inspired by the BMWi range of cars, this portable camping concept is intended for touring cyclists looking to enjoy the comfort and taste of cooked food in a few minutes, all within a minimalist product.

Focused on the sustainable nature of the BMWi brand, 'Camp Tech' is 100% recyclable and is fuelled by dead leaves and twigs found on woodland and park grounds.



ASSEMBLY

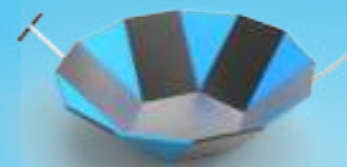
The cleaning brush is nestled inside the water vessel, all of which is held within the main housing



Food is pre-prepared and placed into two small containers, which are stacked on top of one another and placed inside a tube in the water vessel



The expandable pan is folded and placed on top of the container, with the eucalyptus band placed securely over the top to keep everything tight



The entire assembly is placed into the aluminium holder, attaching to the main frame post along the bike.

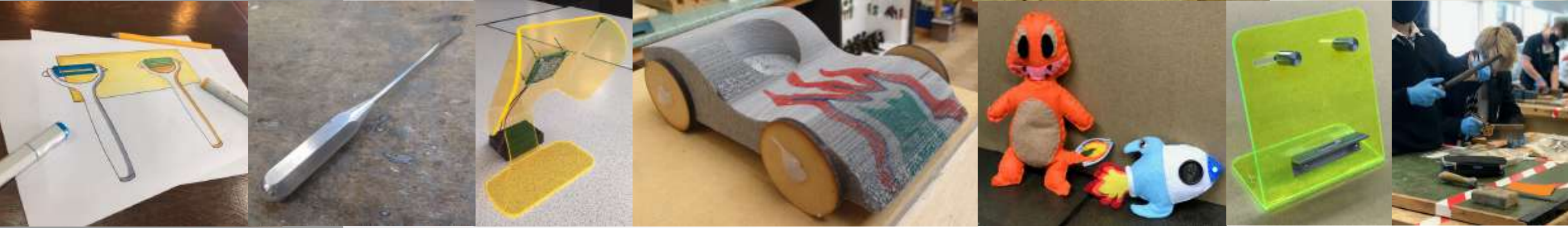


07 Teaching

Product Design teacher

KS3

- Graphics Development
- Sketching Skills
- Multi Material Exposure
- Small Scale Engineering
- Modeling
- Construction Processes
- Basic CAD processes and 3D modeling
- Textiles



KS4

- GCSE AQA and OCR Product Design
- 3D Modeling and Prototyping
- CAD rendering
- CADCAM Methods
- Theory knowledge:
 - Material Sources
 - Commercial Processes



KS5

- A level AQA Product Design
- Detailed graphics work
- Complex 3D Modeling and Prototyping
- Advanced CAD rendering and CAD/CAM techniques
- Complex theory knowledge and application
- Artifact EPQ (Extended Project Qualification)
- Research led practical project focusing on problem solving and real world solutions

08 Personal projects

DIY and making has always been my greatest passions, learning new ways to use materials and specialist processes in unique and innovative ways. Having the chance to work under the guidance of an experienced carpenter allowed me to fully immerse myself in the practical nature of the craft and soon my love for the workshop environment and the art of making grew.

As a result, with my spare time I like to keep my creative and practical skills fresh by designing and making furniture or other household items, predominately out of scrap wood and other materials.

I am a strong advocate for sustainability, particularly upcycling, so sourcing material from previously disposed items such as pallets and out of style furniture help drive my designs.

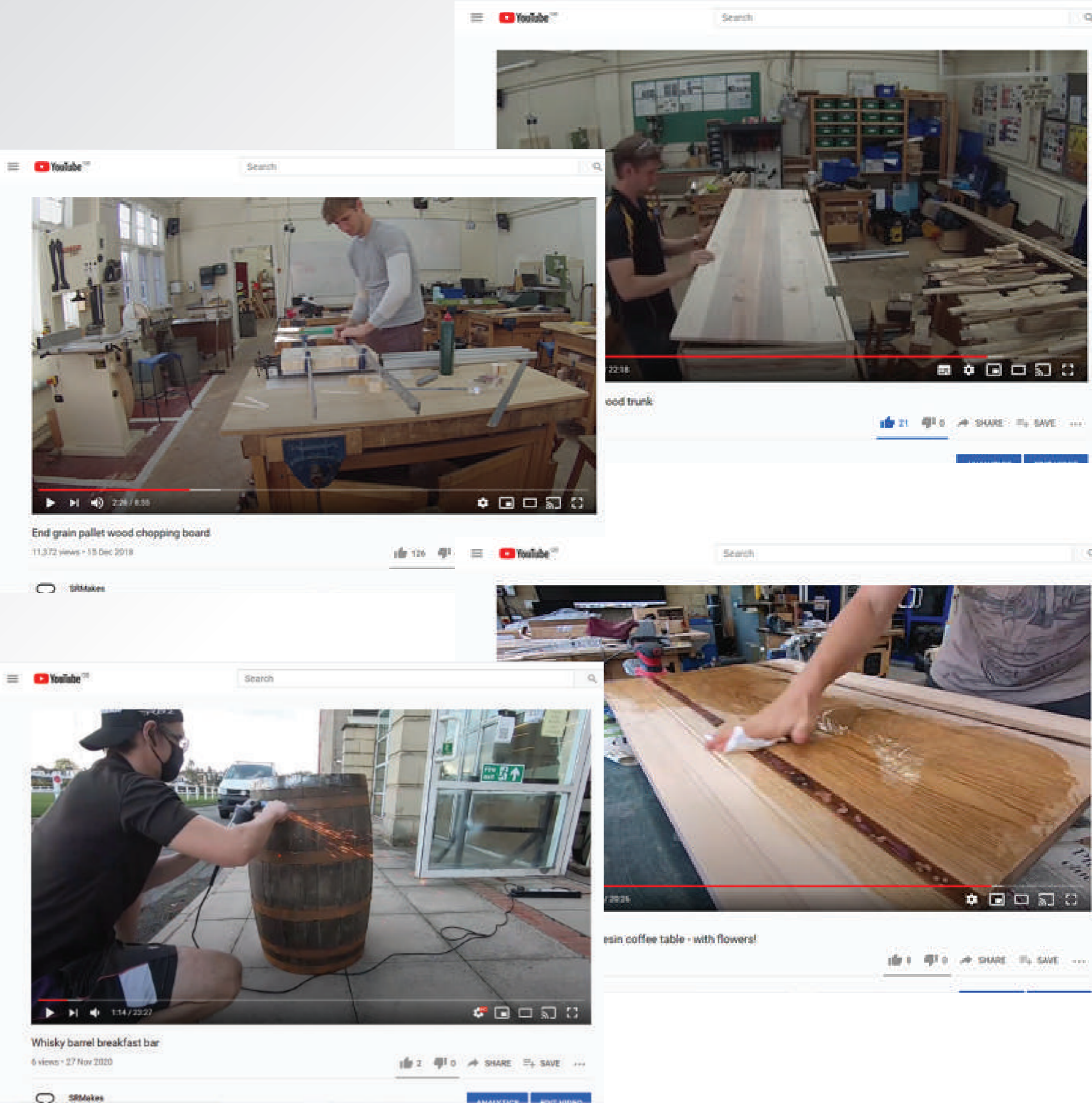
These new found skills have also allowed me to branch out into other areas to demonstrate my craft. Most notably I enjoy fixing and refurbishing cricket bats to their once former glory, allowing me to combine my two biggest passions of making and cricket into one enjoyable experience



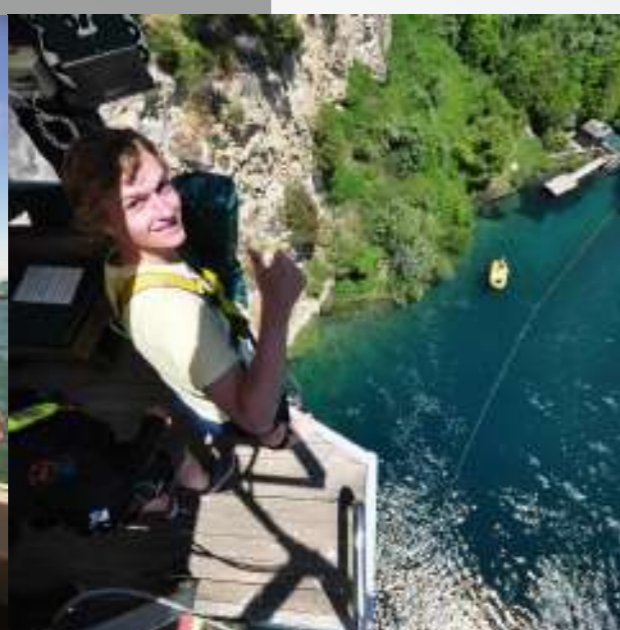
09 Video editing

With more experience, I have started to document more intricate and interesting projects I create, which I personally film and edit. This being with the vision people and students can understand better how a piece came together, and provide some light entertainment through what I do. This in turn has evolved into creating instructional videos of project work to provide guidance for pupils during practical lessons and for them to reflect on their practice in their own time.

My goal is hopefully one day it will encourage and inspire other to start making themselves, emphasising the importance of design and ultimately keep the skill and art alive.



10 Interests & experiences



Travelling
New Zealand
2012-2013
Interrailing
Europe
2014

Sport
(Various)
Coaching
Skiing
Climbing



Singing/
Performing
Charitable
work
Carpentry
and DIY

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