

Vise Helmet

Process Book

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My Name is Séamus Flannery.
I am a 22 year old from Drogheda,
Co. Louth. I enjoy gardening,
photography, painting, traveling
and running. The roots of this
project stem from my father. As an
Albino, he suffers from Photophobia.
Photophobia is the intolerance to
light. As a result of this, my father
and those like him, have their vision
greatly reduced when too much
light enters their eyes. The majority
of sufferers of Photophobia cannot
drive. This binds them to modes of
transport such as cycling.

When cycling, it is imperative that
light is kept from entering the eyes
of these individuals. The current
solution observed by the designer is
to wear a peak cap under the user's
helmet. However, the designer
learned this solution poses a
set of problems to the users.

The Problems

The problems were identified through interviews and observations of the target user group.

The Design Challenge was set to design a bicycle helmet that addressed the following problems and allowed the target user to cycle safely and with style.



The peak cap moves independently to the helmet, causing discomfort to the user.



The cap is pushed into the users head at the helmet's pressure points, causing discomfort.



This movement poses a safety risk if the user does not stop to adjust.



The cap under the helmet means the helmet does not fit right onto the head.



The cap reduces the efficiency of the helmet's ventilation system.

Market Analysis

The worldwide market for Cycling Helmets is expected to grow at a CAGR of roughly 4.5% over the next five years, and will reach €1007 million in 2024, up from €960 million in 2016.



Europe

% of Global Market: 36.35%
Market Worth: €255.42m



North America

% of Global Market: 31.94%
Market Worth: €224.43m



Asia Pacific

% of Global Market: 21.94%
Market Worth: €154.16m

Market Segmentation

There is some overlap in the market value of each helmet group. This is due to some Sports Helmets also being considered Road & MTB Helmets and vice versa.

The road helmets segment is expected to grow, registering a substantial CAGR to reach €374.31 million by the end of 2024. Biking has become an increasingly popular activity around the world, especially in the US, the UK, and the Netherlands, where the majority of citizens commute by bicycles.



Road Helmet

Predicted market value, 2024: **€374.31m**



Sports Helmet

Predicted market value, 2024: **€343.14m**



MTB Helmet

(Mountain Bike)

Predicted market value, 2024: **€289.63m**

VIS 
Protection for Everyone



Made for your Commute

An urban helmet designed to the highest safety standards, stacked with professional features including an innovative front visor which drives an excellent airflow efficiency through the helmet.

Equipt with a hair-saving, breathable membrane for protection against light showers. The commuter helmet includes a fully reflective rear body to ensure visibility: the perfect combination between safety and comfort for your urban adventures.



Features



Polycarbonate
Outer Shell

EPS Foam
Inner Shell

Full Rear
Reflective Body

Dynamic Ventilation
System (8 vents)

One Handed
Adjustment



Technical Description

Multi In-Moulding technology that guarantees great protection to the head.

Vise feats a dial adjustment system for precise and comfortable fitting.

Efficient, 8 Vent, Ventilation System.

Removable padding for excellent breathability and washability.

Weight
305g

Standards
EN 1078
CPSC 1203

Research

At the beginning of this project, I was unsure as to what specific problem I would design the solution for. I set out to uncover as many problems as I could facing the visually impaired community.

This lead me to reach out to The Visionaries Choir, NCBI & The Albinism Fellowship UK & Ireland, from who I scheduled interviews and the project began.





Interviews

17 face-to-face interviews were carried out in the home of the interviewee.



Observation

Problems described by the interviewees were observed first hand by the designer. It was at this point the designer chose to focus on the problem of the cap under the helmet.

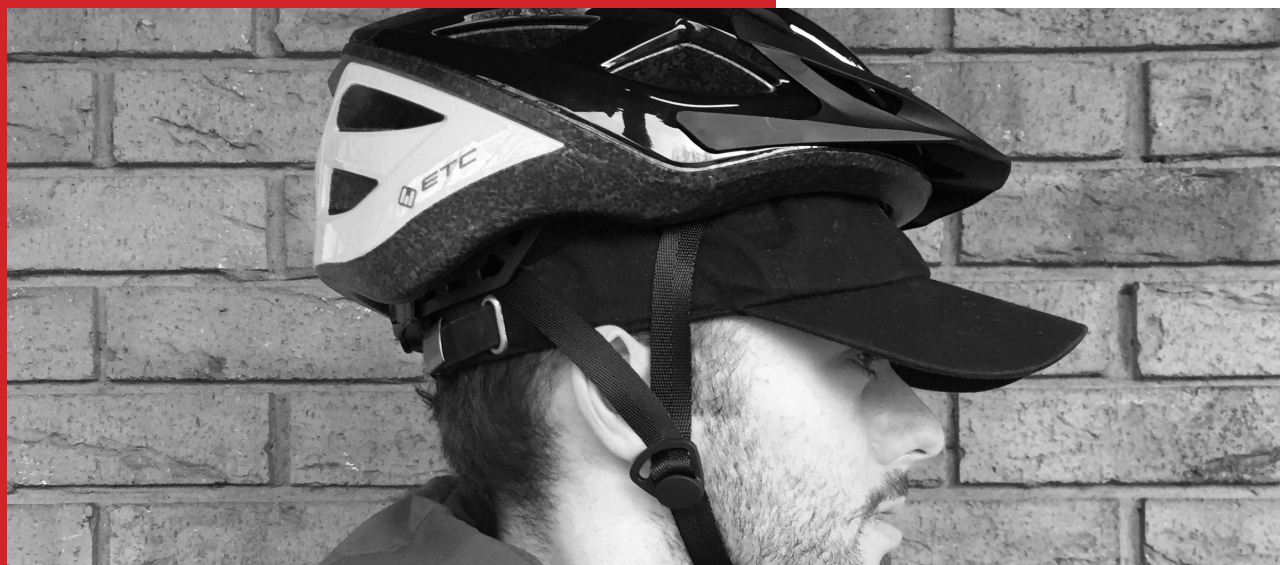


In-Depth Analyze

A in-depth analyze of the problem was held with the target user.

1. How often do you cycle

- ☐ Every day
- ☐ A few times a week
- ☐ About once a week



Wider Audience

Findings from initial research was put to a larger audience to understand the wider needs and feelings surrounding the issue in the community.

Professional Consultation

An Optician was consulted on industry practice and the best methods of tackling the issue.

Empathize

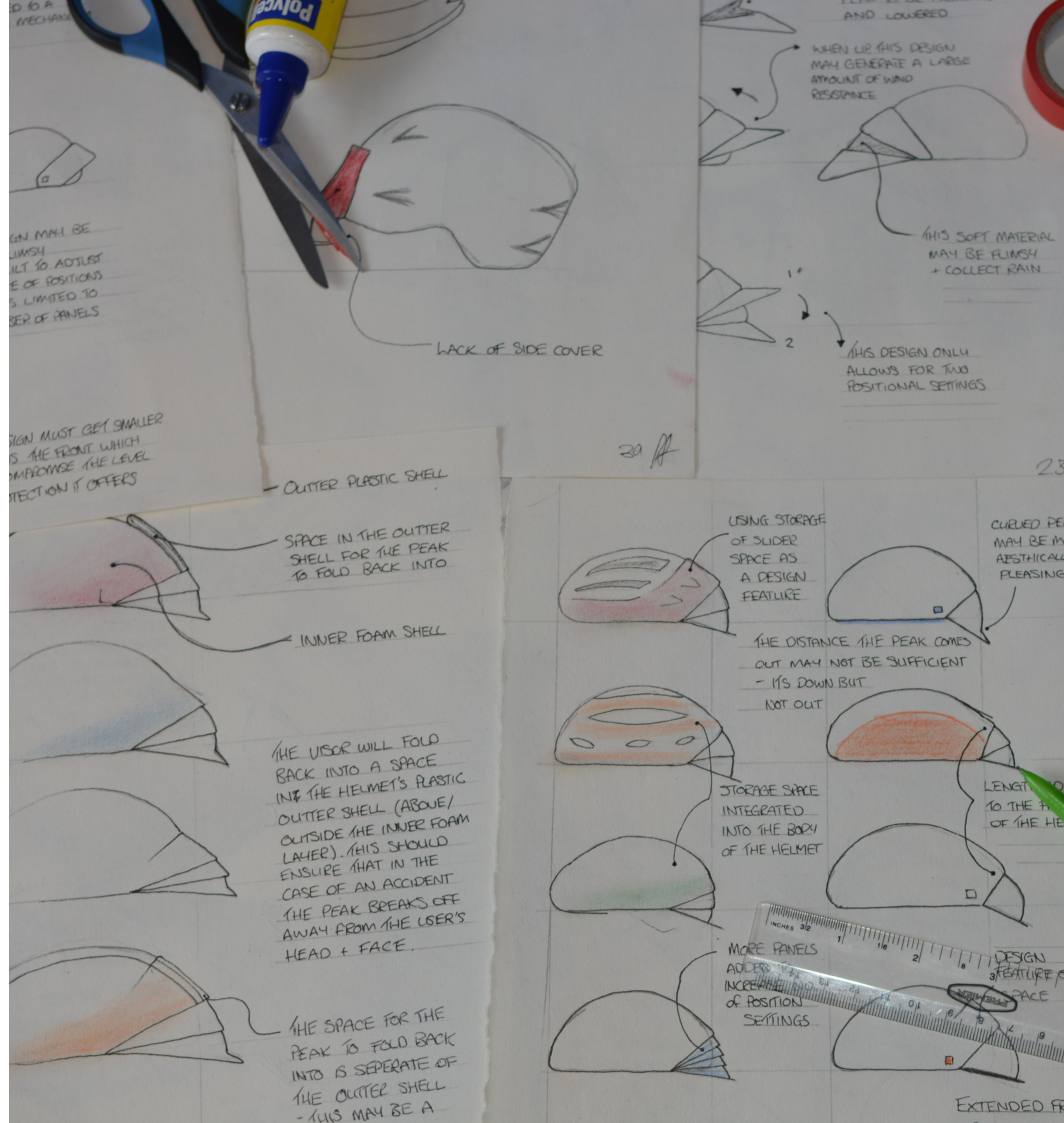
The designer put himself in the shoes of the target user to truly understand the problem.

My Creative Process

Using the Stanford D-School Process for Design Thinking, I was able to grasp a better understanding for each and every problem I uncovered.

My aim was to create and develop a solution that met the needs of the target user.

With stringent safety standards to be met in the Cycling Helmet Industry, I strove to achieve a design that fulfilled the user's desire for safety, style and convenience.

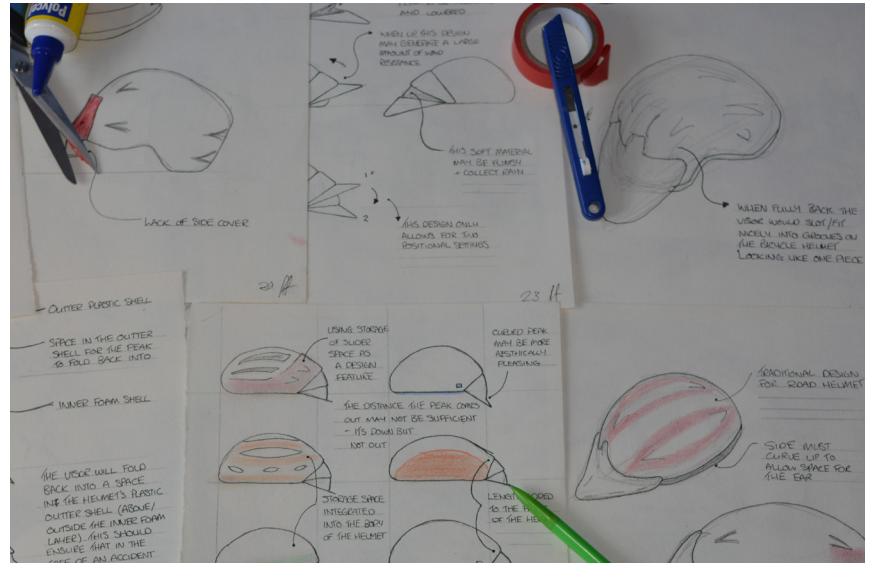


Ideation

To begin my ideation phase I needed to understand the inner workings of the products currently on the market. I purchased 3 helmets of varying style and reverse engineered them to understand how they functioned, the advantages to their the designs and the disadvantages to their design.

Using my broad skill set, I began generating ideas through sketching, creating mood boards and rapid prototyping which helped me form viable solutions.

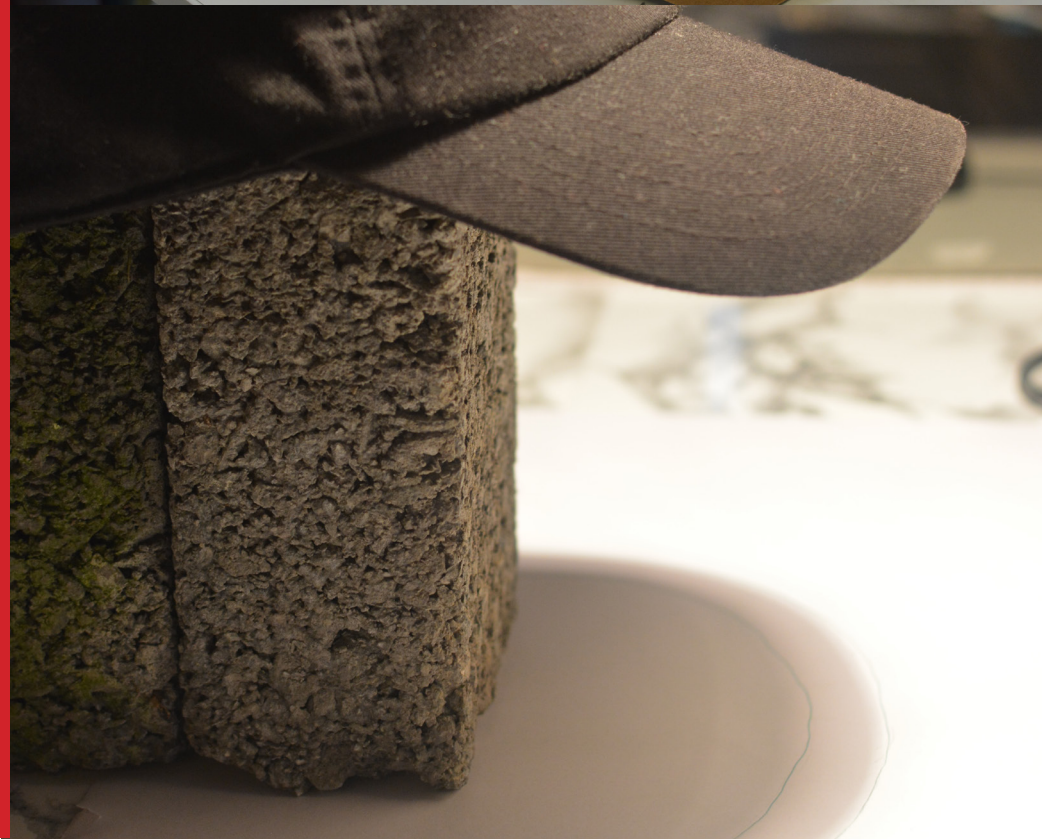
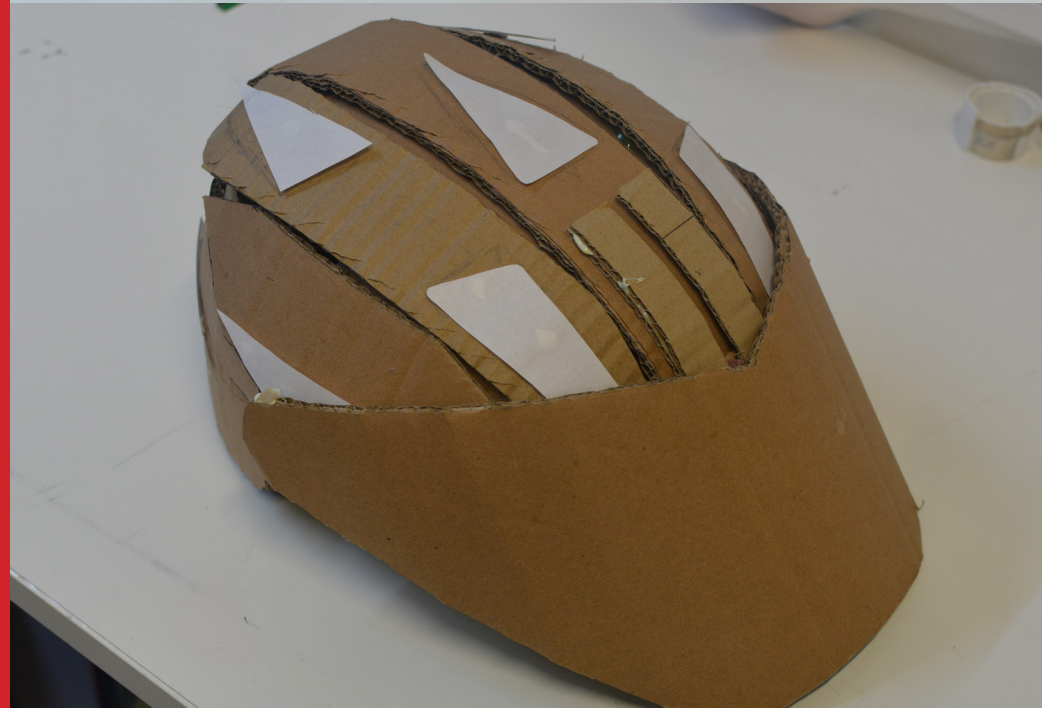




Testing & Validation

The rapid prototyping allowed me to quickly trail and test a range of designs, each time edging closer towards a final solution.

Designs were tested for their aesthetic, placement of vents, Visor size and shape & Visor coverage.



Prototyping

For the final prototype a inner scaffold of cardboard was built out. The shape of the helmet was then built in cardboard around the scaffold. Plaster was then spread around the cardboard to give an even look and finish. The plaster was then sanded down before painting. The inner scaffolding was then craved out to allow for the head space.

The inner padding was cut and sown with the membrane to the required size of the design.

All spray painting was carried out through great attention to detail with numerous coats applied.





With the Final Prototype I believe I have achieved a design that satisfies the target user's need for safety, style and convenience. Above all the design ensures the user can be more confident and comfortable while traveling by bicycle. With less light entering the eye due to the innovative front visor the cyclist is now free to focus on the road.



My Vision

WISE

I am currently in contact with Louth Enterprise Board about gaining access to resources and funding to develop a market ready prototype for regulation testing.

MYSELF

On reflection of this project, I must confess the part I enjoyed most was the research element. I relished interviewing individuals, observing their problems and pondering solutions with them. I have the aim of entering this section of the industry after graduation and would be extremely grateful for any opportunity I receive.

Thank You

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