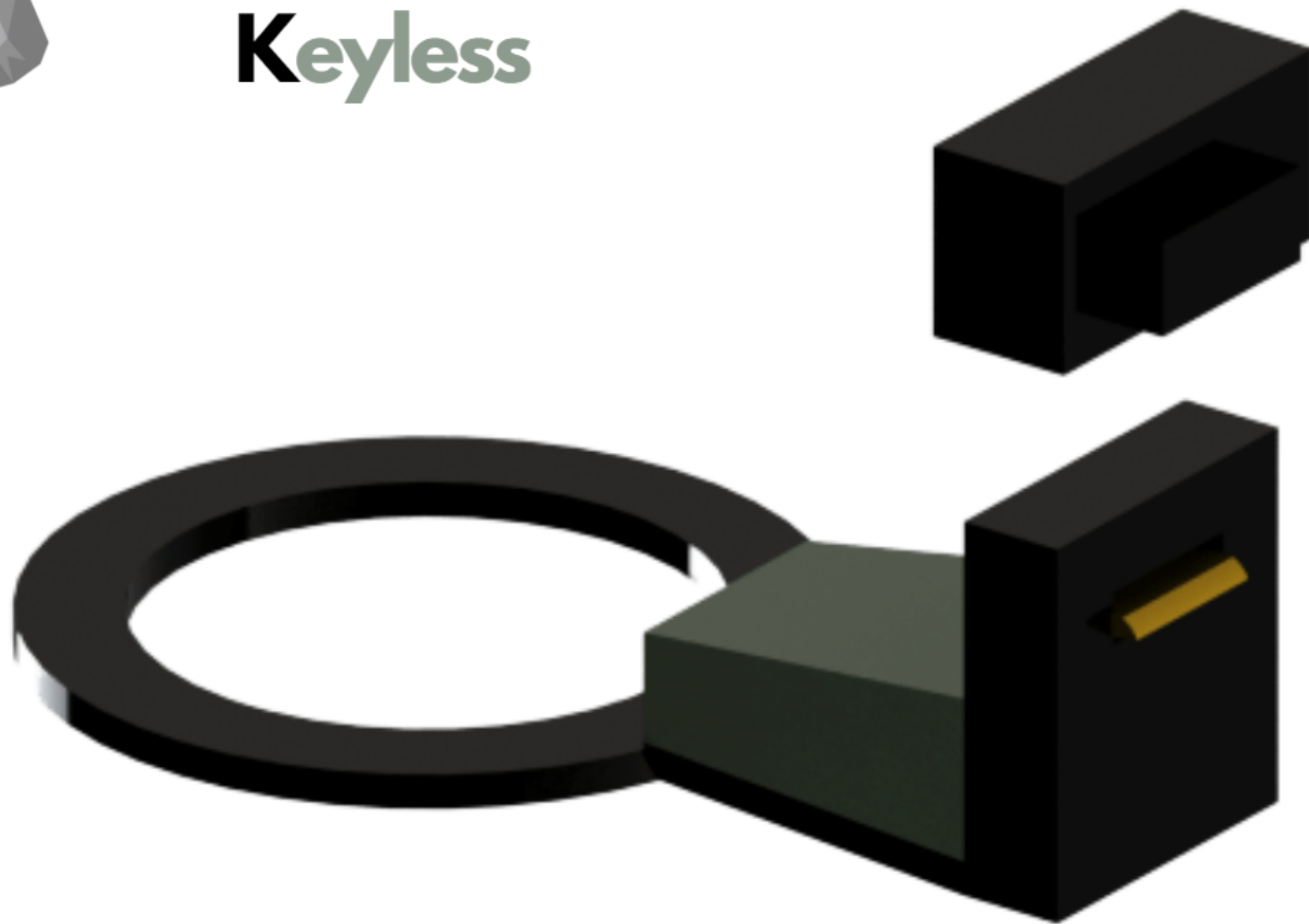




Easy
Lockable
Keyless





ELK

My Design Journey



Section 1		Product Story
Section 2		Design Process
Section 3		Research
Section 4		Ideation
Section 5		Prototype
Section 6		User Testing + Development

HOW CAN WE REDUCE THIEVERY OF OUR MOTORCYCLE EQUIPMENT?

"In a perfect world, we would be able to leave our belongings out without any worry at all. Unfortunately that isn't the case, especially with motorcycles."

-Kyle Cannon (motorcyclehabit.com)

Elk Lock is the latest solution to keeping your motorcycle equipment secure while you're going about your day.

ELK Lock uses the latest technology, the strongest materials and combined with its smart design, it offers maximum security for your motorcycle helmet.

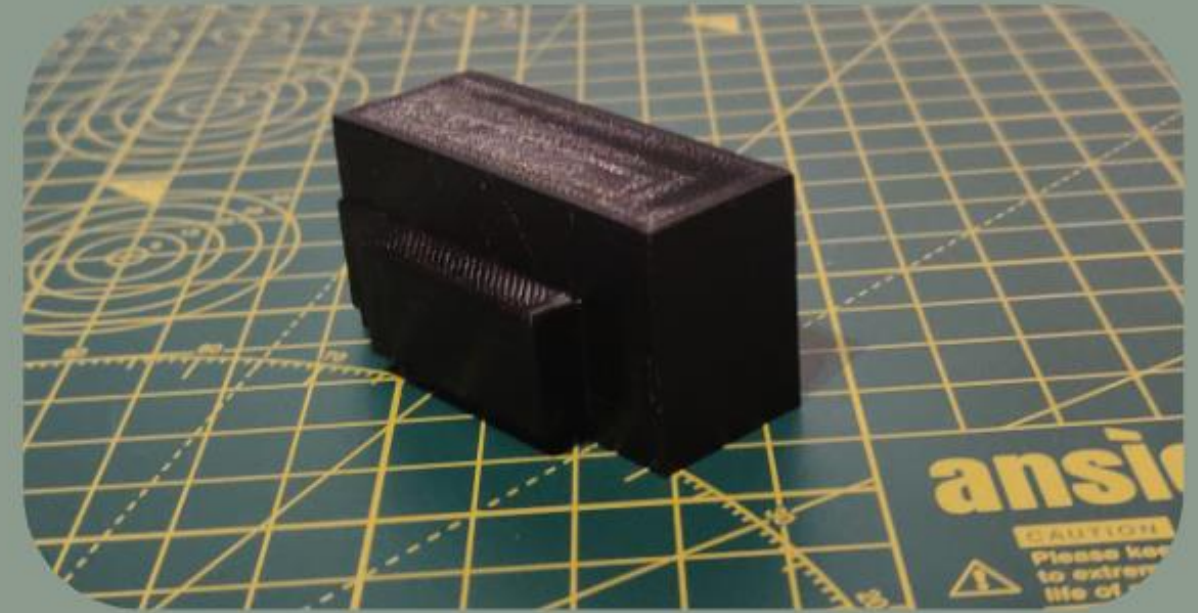




KEY FEATURES

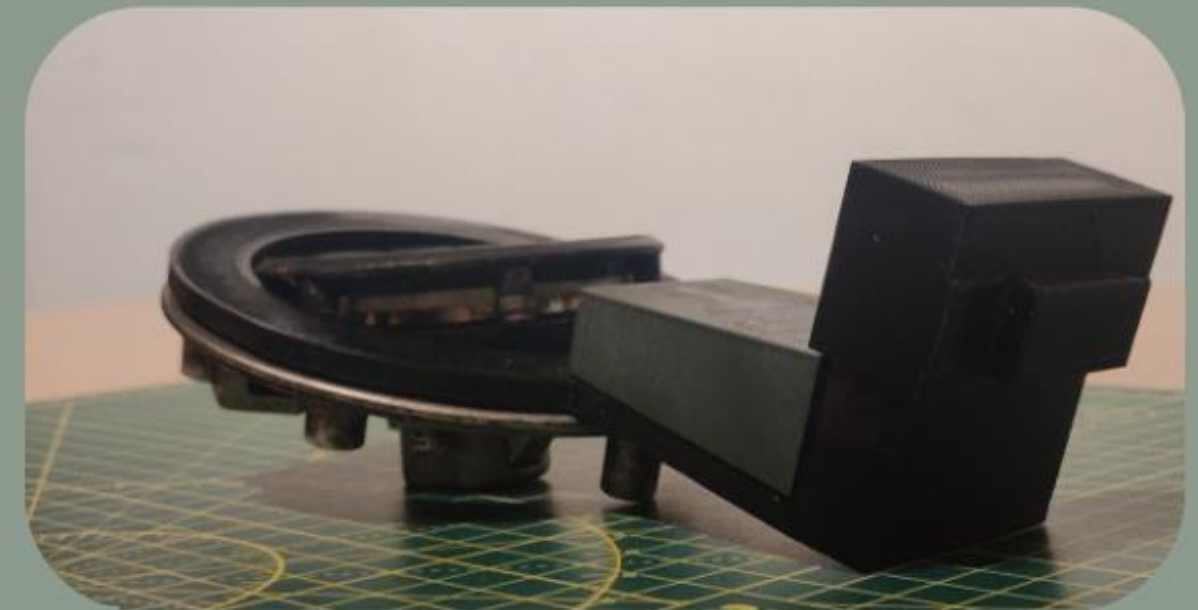
Helmet Modification

Elk Lock offers a two part system to allow ease of use. A light weight female receiver has been designed to provide rapid access when dismounting.



Modified Fuel Cap

Elk Lock's second part is a modified fuel cap. This modification leverages the security the locking fuel cap already offers. This allows the helmet to be secured onto bike very effectively. Essentially making the bike and helmet one when in use.



Easy Locking System

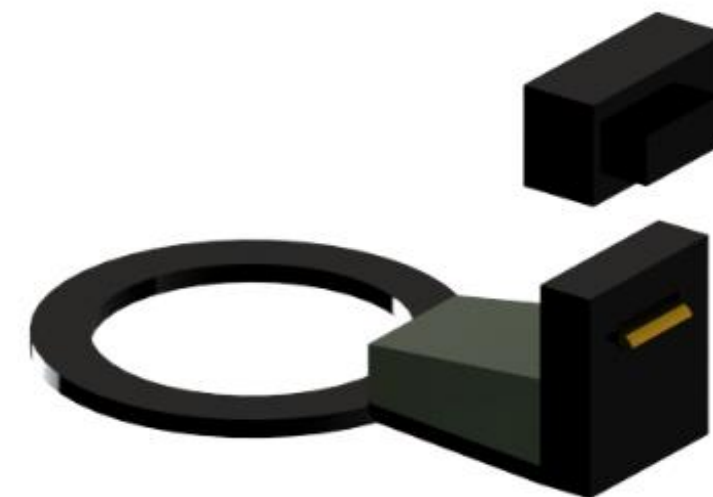
Elk Lock utilizes a one way system to offer rapid locking. This system allows the user to pack away their helmet within seconds of taking it off their head.

Accessible Unlocking

Elk Lock wants to make every step of its use easy for the rider. This is why ELK lock offers key-less entry using an app.

ELK Lock App

The ELK lock app has been designed to offer accessibility even with large motorcycle gloves on. It includes features such as theft detection and parking reminders to make your day less stressful.



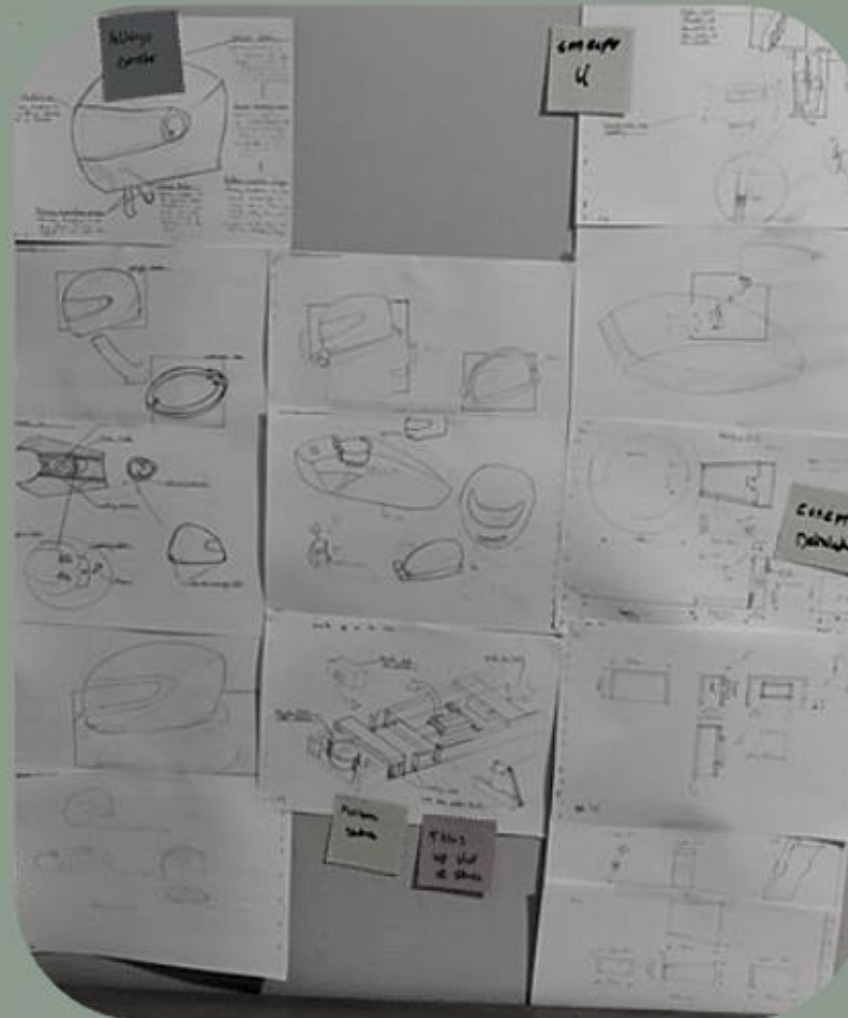
THE DESIGN PROCESS

RESEARCH



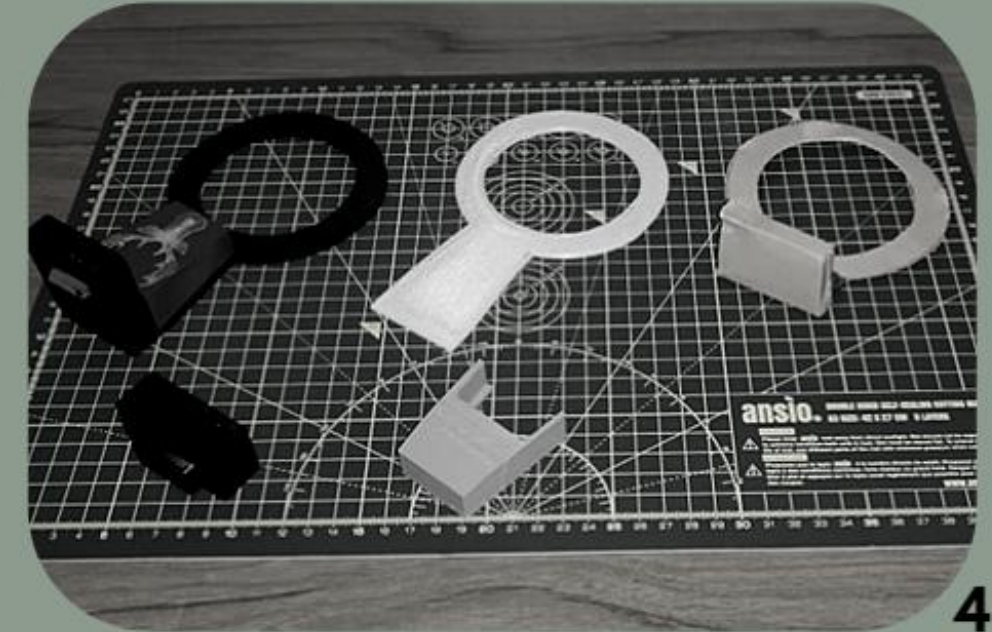
1

IDEATION



3

PROTOTYPE



4

DEVELOP



2

USER TESTING



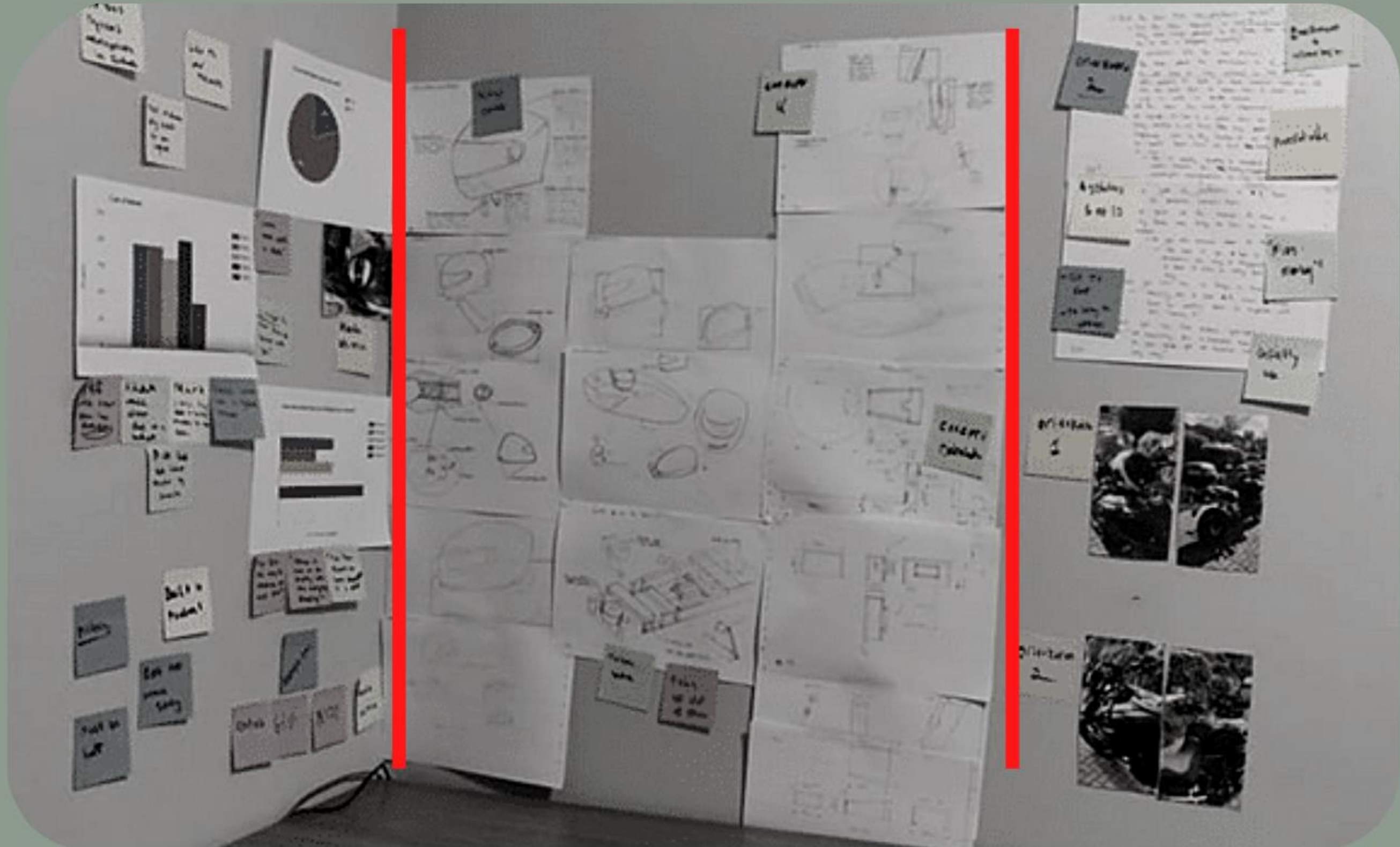
5



RESEARCH

IDEATION

USER TESTING



USER RESEARCH

To get a in-depth understanding of my target user I had to utilise a few different methods of information gathering.

My most successful source of research was face to face interviews. These interviews gave me strong evidence suggesting motorcyclists wanted more options for helmet storage.

I gathered the idea of making my solution a built in feature from my interviews. One of my interviewees stated that he would like to see more built in features sold with bikes to reduce the need for after sales additions.



METHODS UTILISED

Interviews

Empathy Maps

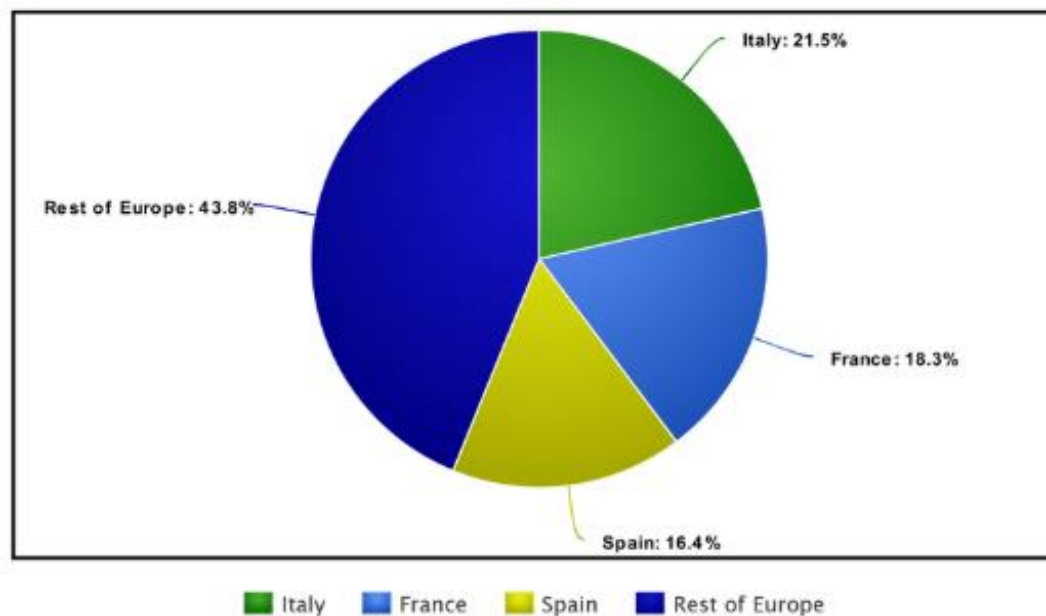
Journey Maps

Observation

MARKET RESEARCH

Motorcycle sales in Europe grew by 8% in 2019. A total of 1,079,524 motorcycles were registered in 2019, this number far exceeded market expectations proving that the increase interest of compact transportation is on the rise rapidly. The largest contributors were Italy(231,712), France(197,470) and Spain(177,037).

EU 2019 Motorcycle Sales



meta-chart.com

MARKET TRENDS & DRIVERS

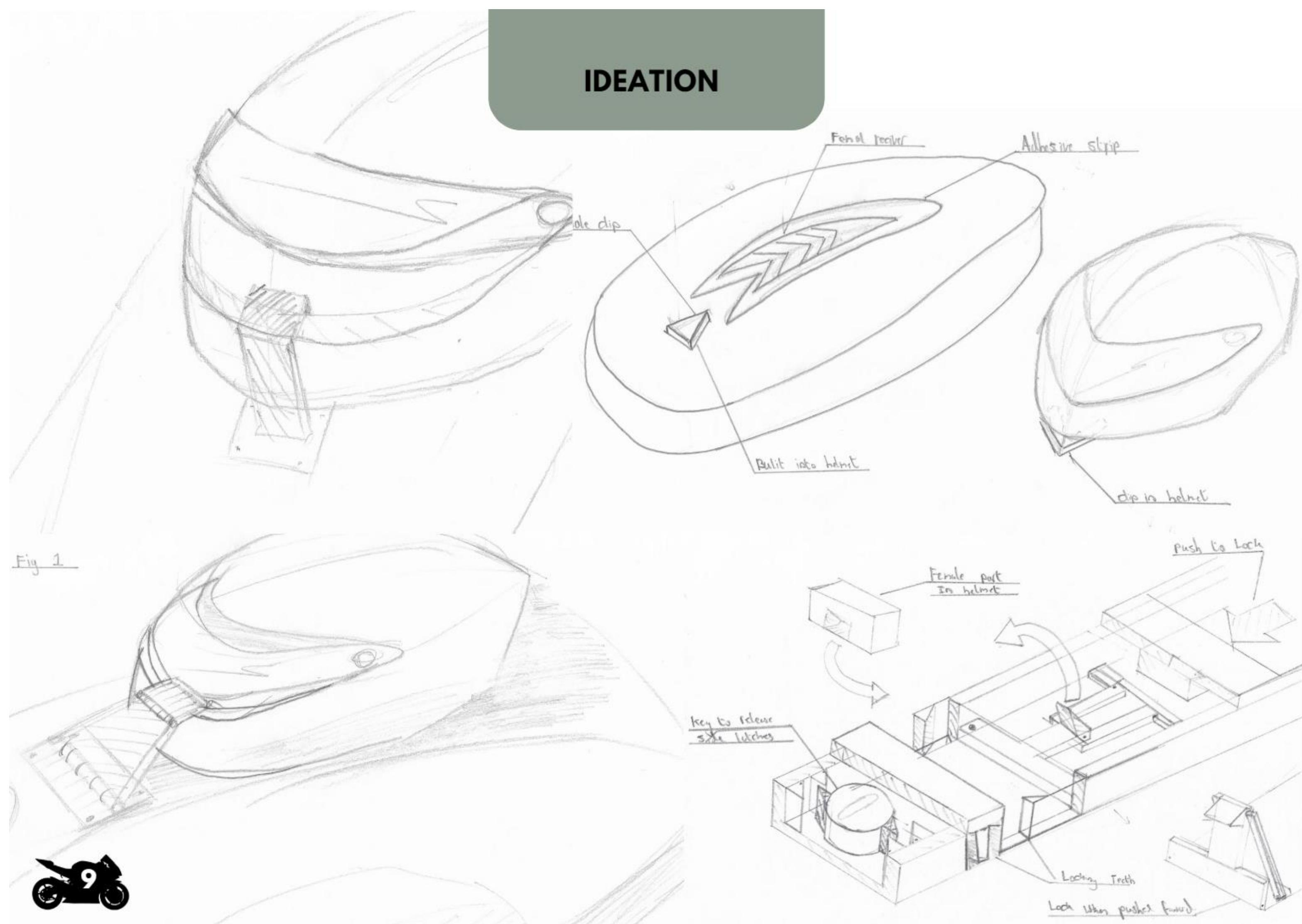


With city's all over the world becoming increasingly congested people are looking for faster methods of commuting. Many are looking to motorcycles for the many advantages they offer such as faster commuting times and lower running costs.

This move towards motorcycles is creating many opportunity's for innovation in the sector.



IDEATION

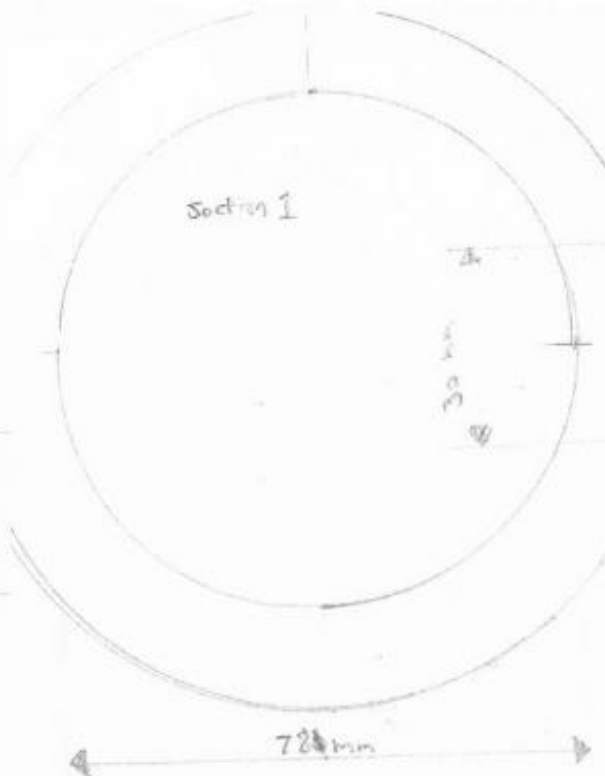
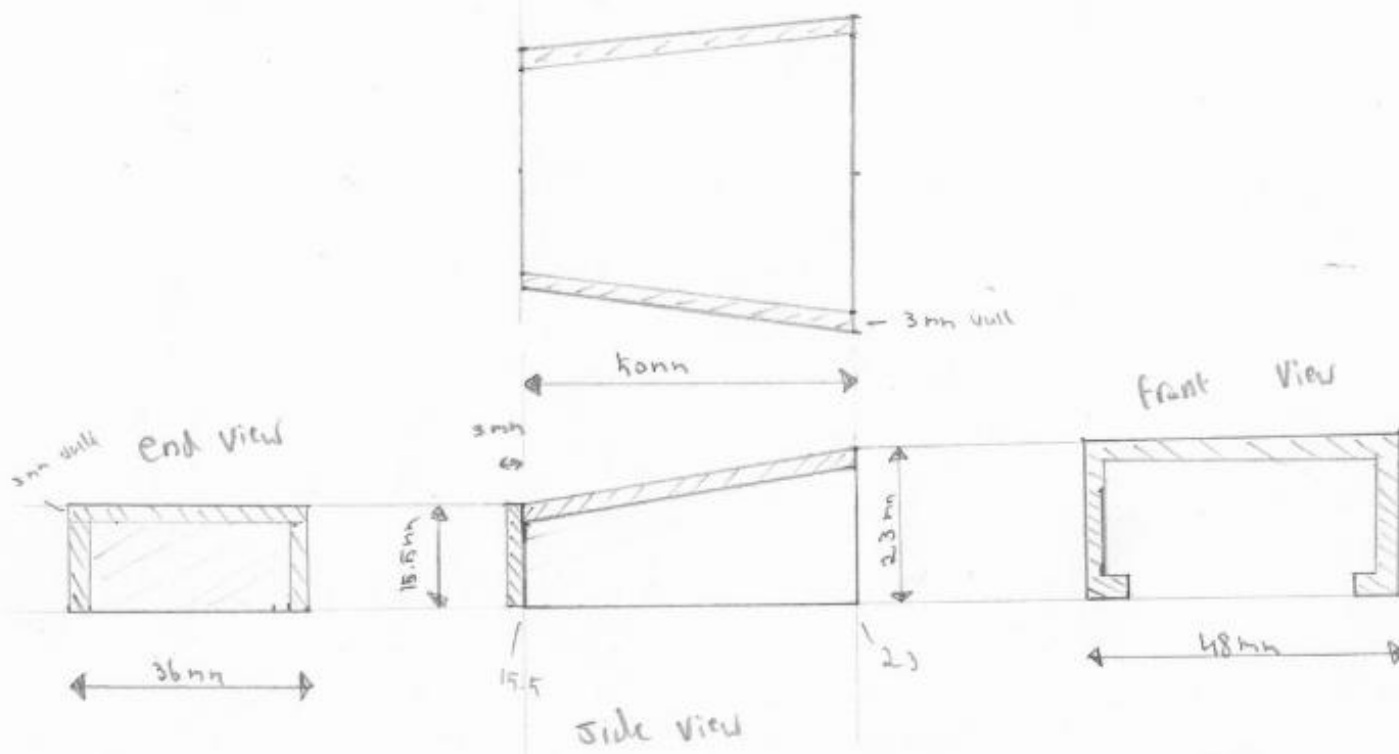
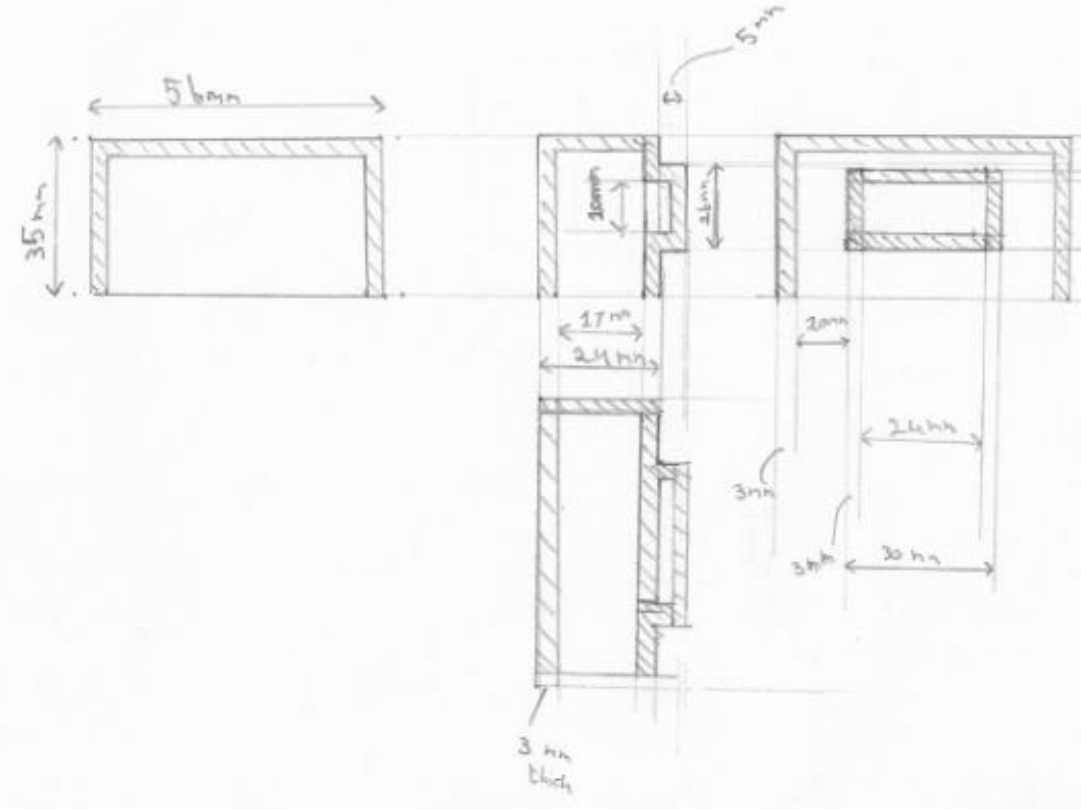


Male insert
This part will
be held on
the inside of
the helmet

Female receiver
This part
will fit into
the male
insert
high up
the helmet
and cap

Protect
locking
system

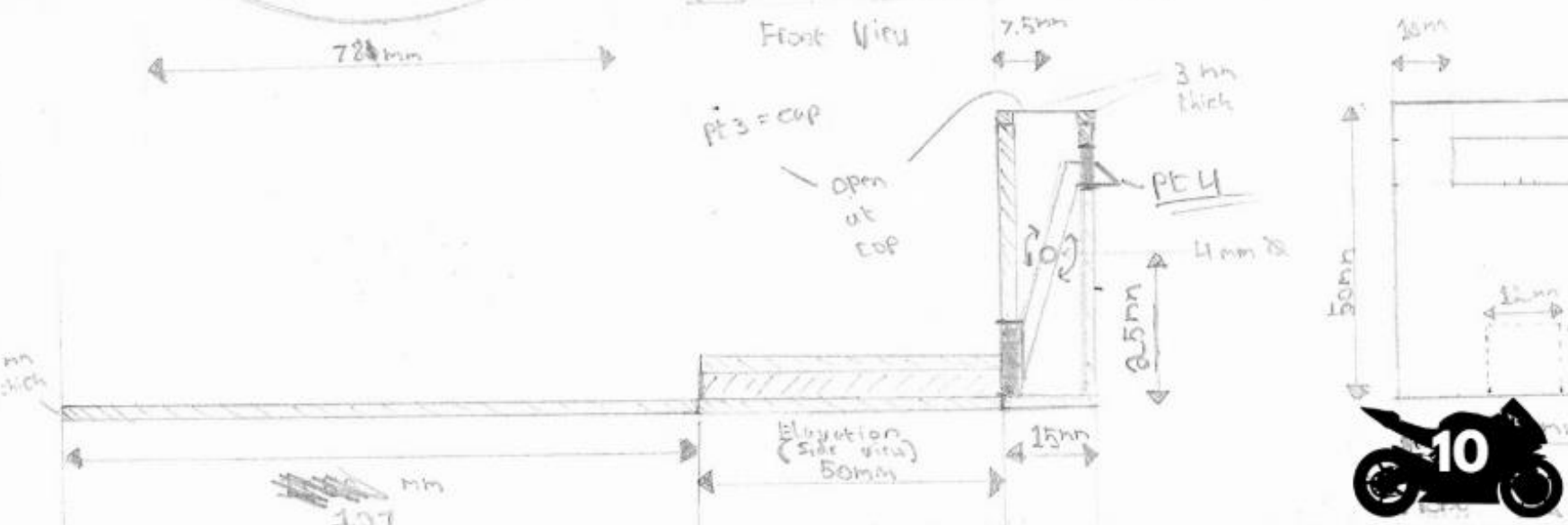
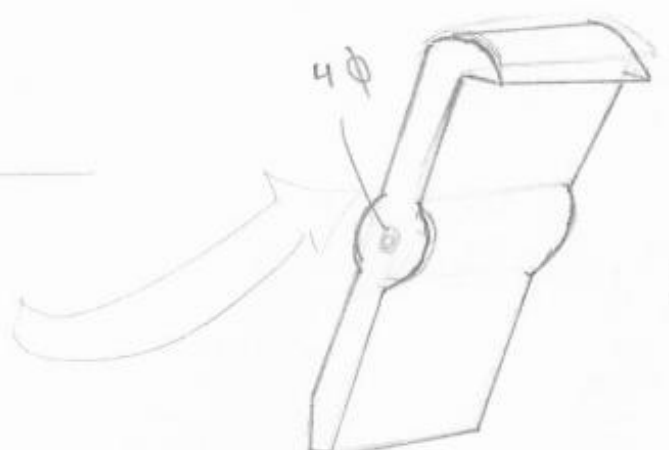
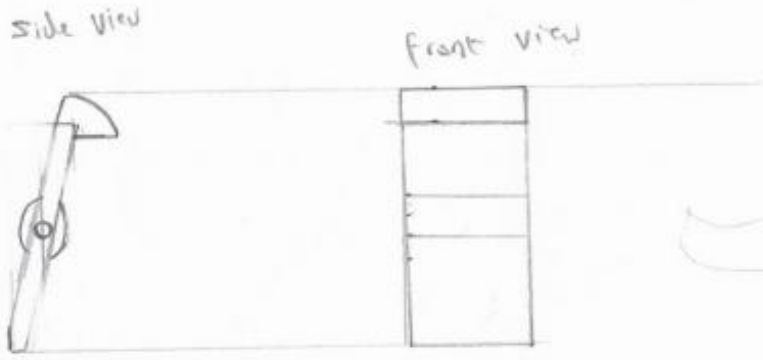
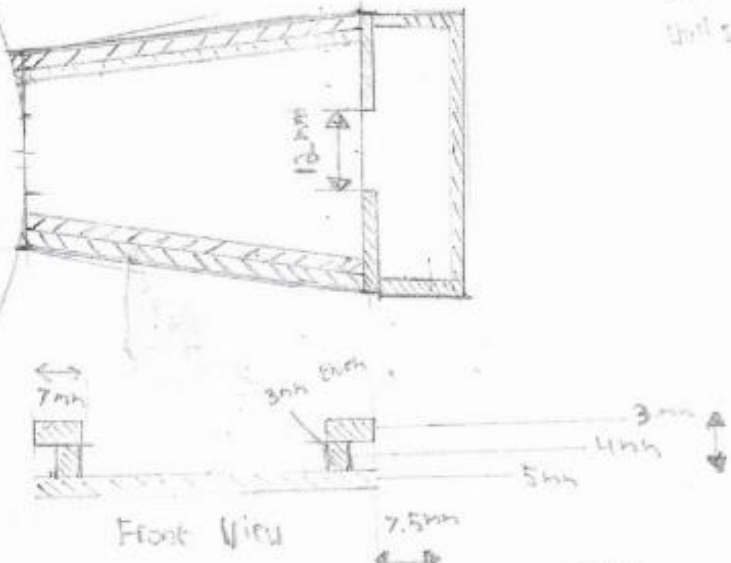
Latch

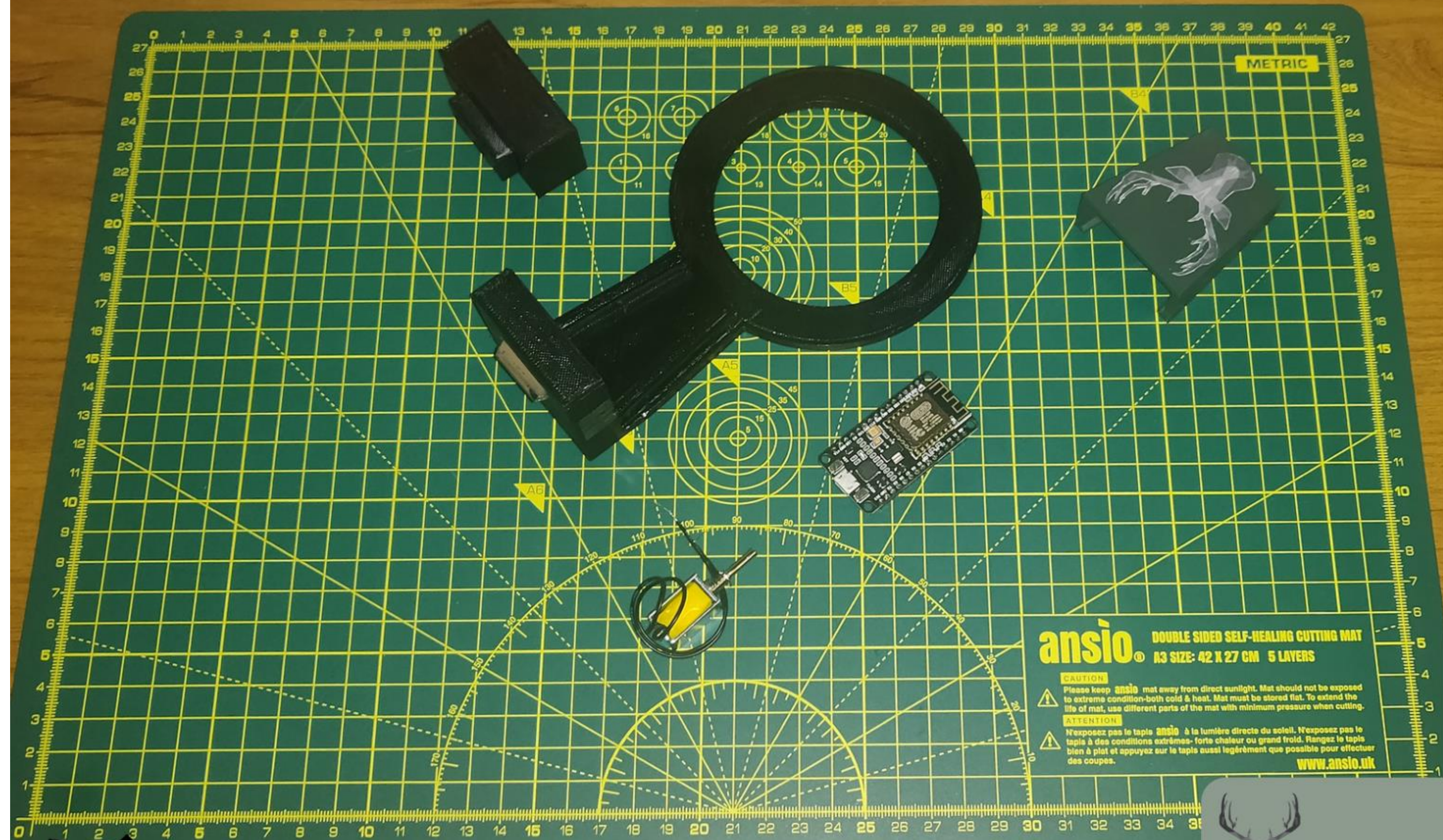


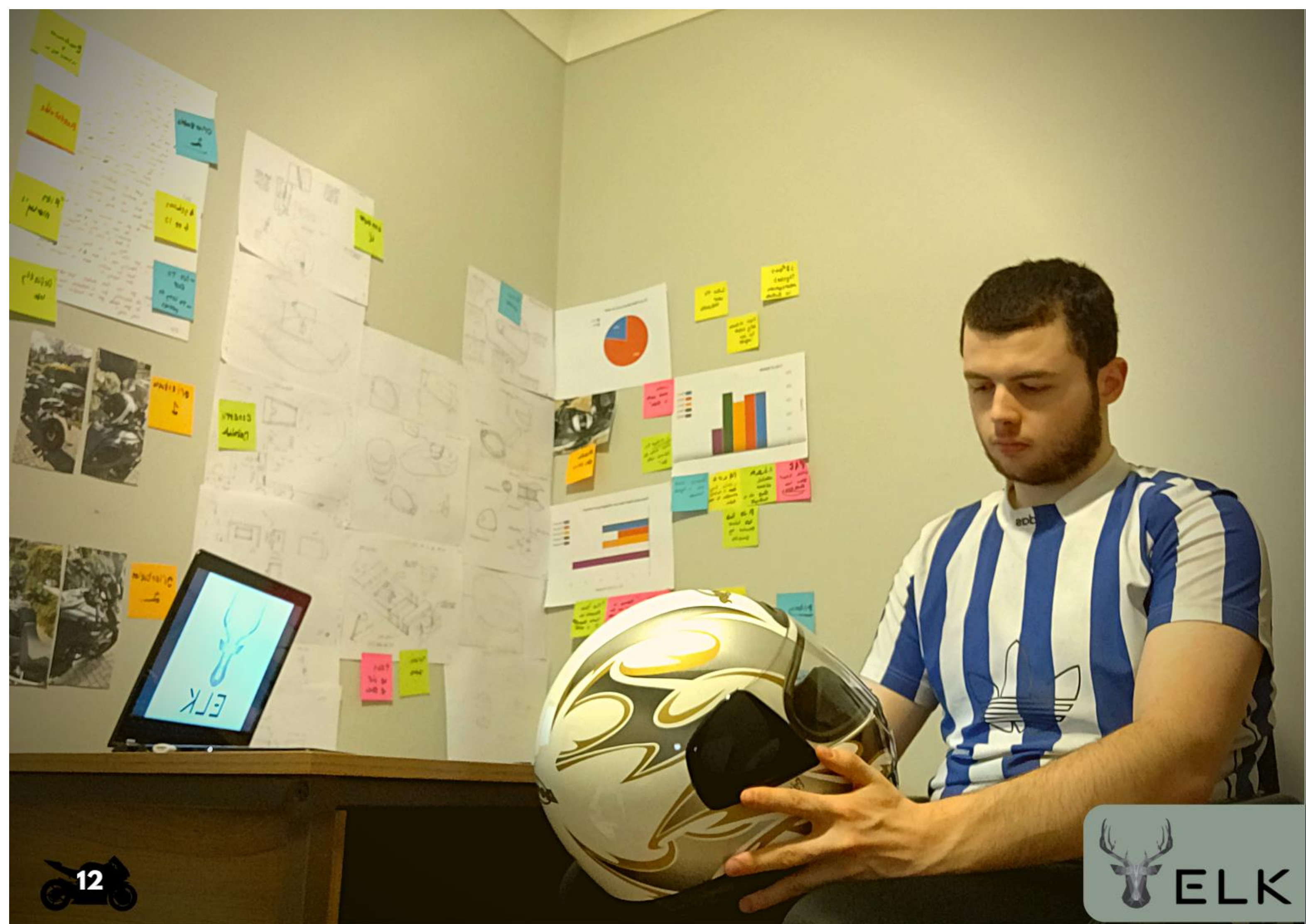
Plan (Top View)

Section 3

Base = 5mm thick
Walls = 3mm





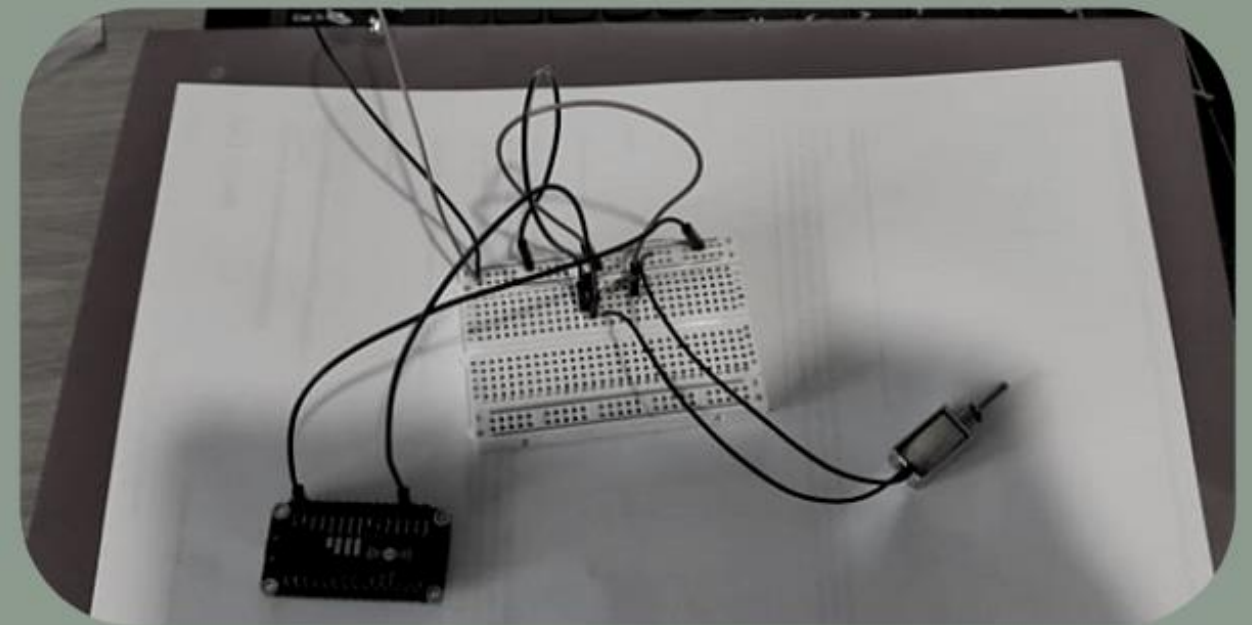


PROTOTYPING

There was a number of steps involved during the prototyping stage of development. I started off by gathering the necessary information required for the electronic components to fit and function in the product casing. I then had to do a number of tests to have the components working with an app.

The next step was to build the physical product. My initial intentions were to build this by hand but due to Covid-19 I no-longer had access to a workshop. However I wasn't prepared to allow this to slow the development.

I decided that the best solution for me was to purchase a 3D-Printer, learn the software and print the parts at home. I achieved this by converting my CAD-files into Stl. format on my PC.



USER TESTING

Unfortunately user testing of a prototype was very challenging under the circumstances caused by Covid-19.

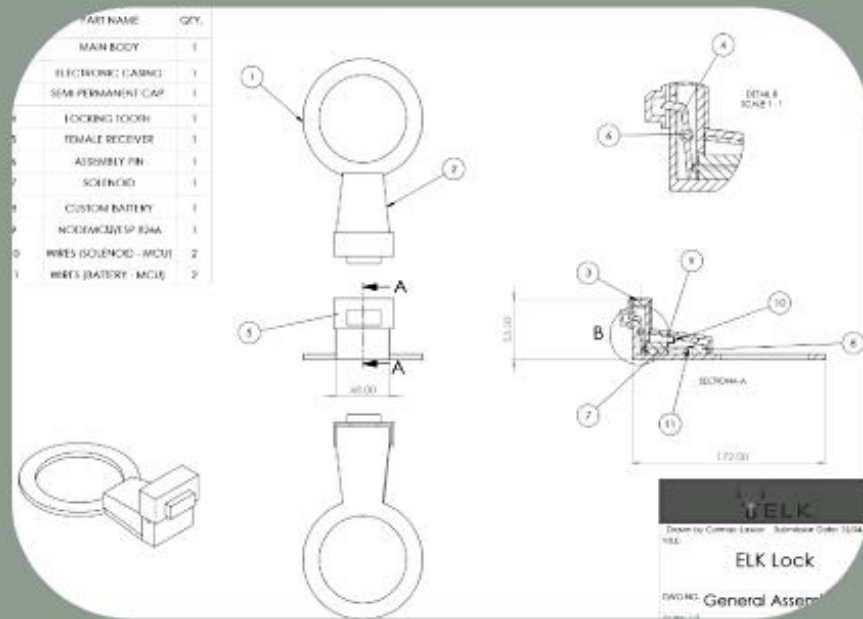
However I was very lucky as my next-door neighbor had a motorcycle and was happy to answer some questions for me. This was completed following the social distancing guidelines.

Unfortunately Pat was camera-shy so he did not want to be in any photos. However, he was kind enough to allow me to take photos of my prototype on his motorcycle.

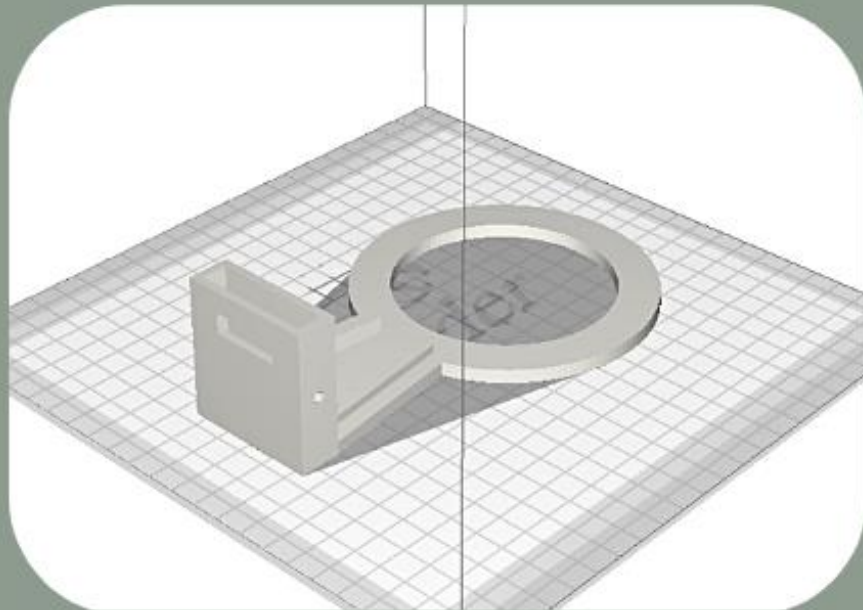


Software

Solidworks

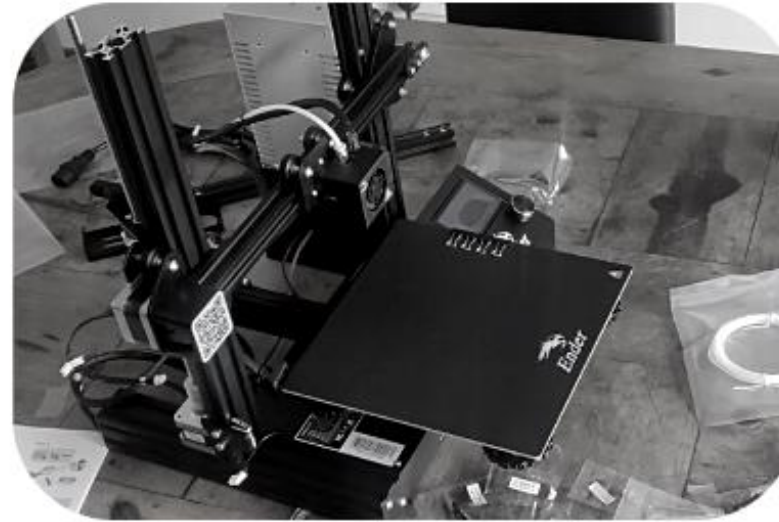


Cura

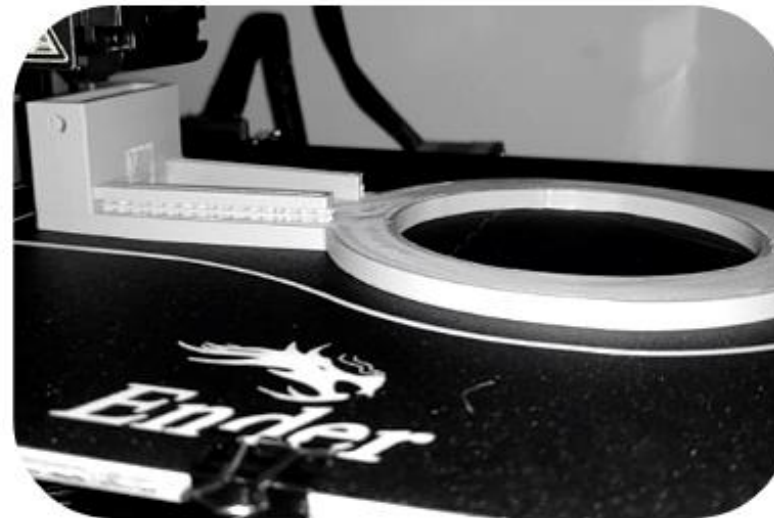


Build

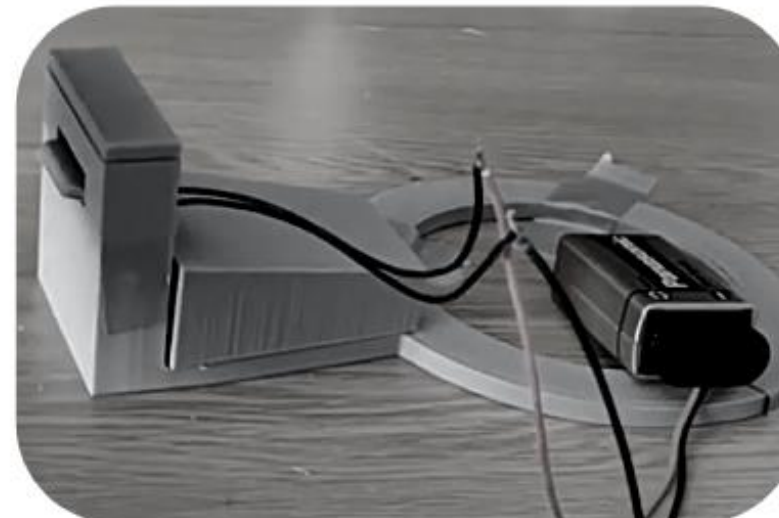
3D-Printer Build



Printing Parts



Assembly/ Testing

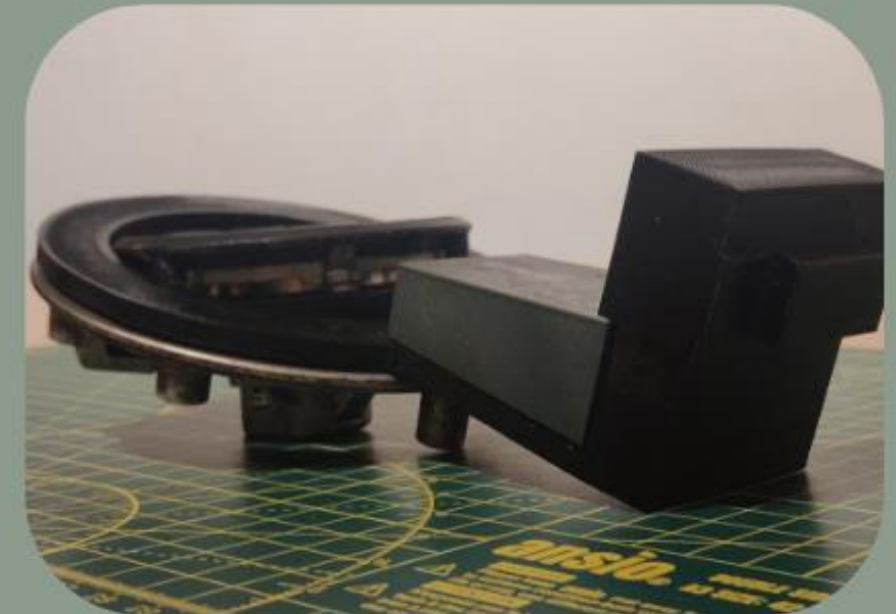


Finish

Applying Finish



Assembly/ Final Model



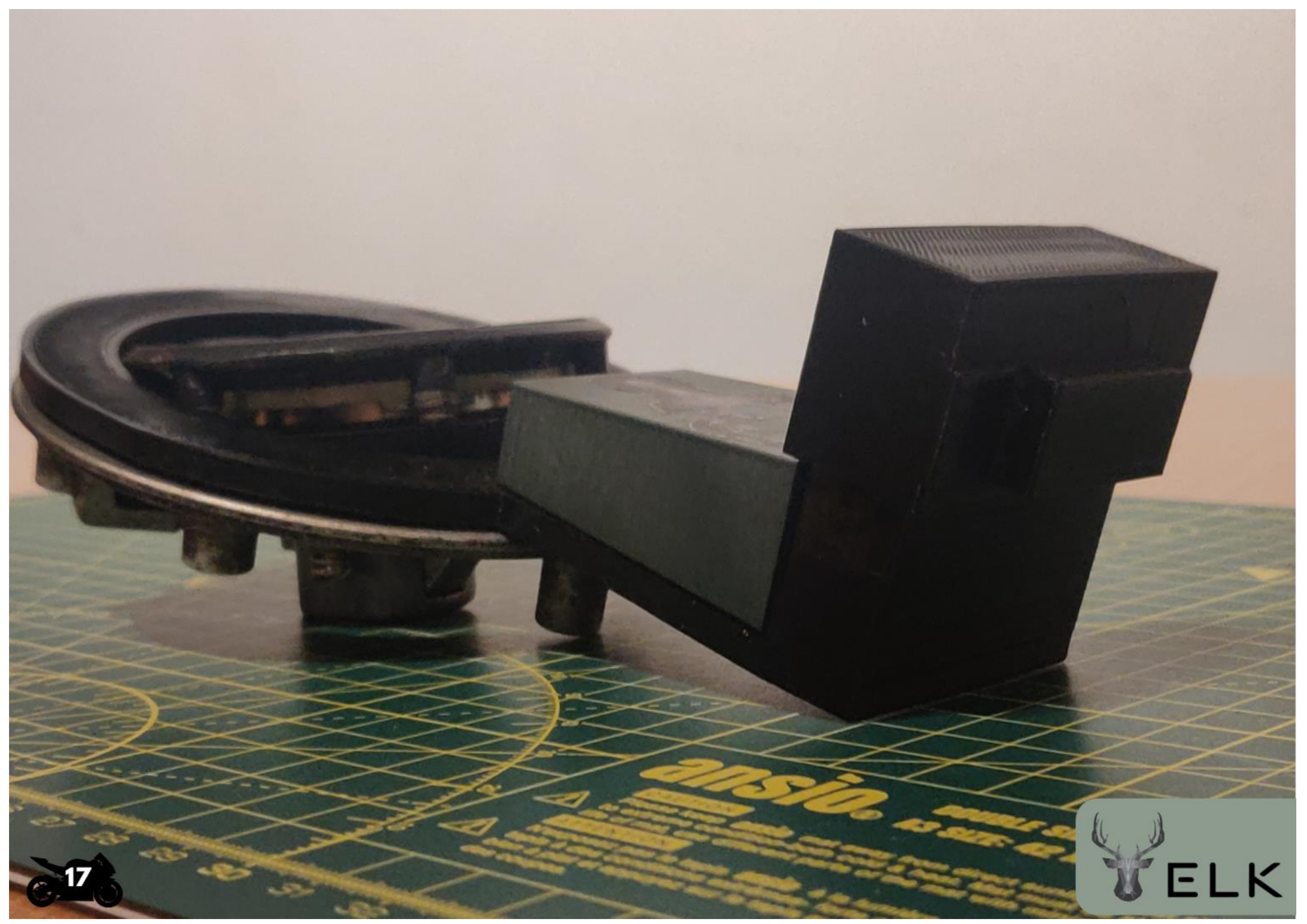
PROTOTYPES

3D-Print Prototypes

Early Paper Prototypes

Final Model







ELK



Thank you for your time.