

Project 2 report

Reimaging of Camping Lights with enhanced
portability

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Vasa Padmanabham | 22m2221

Approval form

This is to certify that the Industrial Design Project entitled "Reimagining of Camping Lights with Enhanced Portability" by Vasa Padmanabham is approved for partial fulfillment for the Master of Design degree in Industrial Design.

Prof. Vinayak Nabar
[Project guide]



Signature of the
Internal Examiner



Signature of the
External Examiner

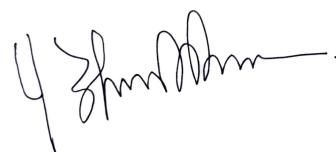

23 Nov. 23

Declaration form

I declare that this written report represents my ideas in my own words, and where others' ideas or words have been included, I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not falsified, misinterpreted or fabricated any idea, data, facts or source in my submission.

I understand that any violation of the above will cause disciplinary action by the Institute and can also evoke penal action from the source, from which proper permission has not been taken or improperly been cited.



Signature :

Name of the student : Vasa Padmanabham

Roll Number : 22M2221

Acknowledgement

I would like to express my heartfelt gratitude to our guide, Prof. Vinayak Nabar for his assistance and guidance throughout the project.

I would like to express my gratitude to my IDC colleagues, Shubham Sharma, Piyush Tanwar, Shivani Verma, Aditya Mahamuni, Vedang Kulkarni, Sukhadev Kumavat, Ritik Verma and Tanushka Sarang for their valuable time and contribution regarding the process of this project and grateful for all the instructors of Industrial Design for their assistance, advice and Suggestions.

Special Thanks to Hardik K (NID Gandhinagar) for being the part of this process and unwavering support.

Abstract

Camping has evolved into an adventurous recreational activity, experiencing a notable surge in popularity since the early 2000s and continuing its upward trajectory to date. The camping equipment market has responded with the mass production of reliable and robust gear, particularly in the realm of camping and hiking. While advancements have been witnessed across various camping accessories, the design of camping lights has seen minimal evolution and innovation.

The need for a fresh perspective on camping lights is underscored by the booming demand for enhanced recreational experiences and the pursuit of innovation within the outdoor industry. The camping equipment market has undergone significant transformations over the years, with innovations using advanced materials, ergonomic and sustainable designs.

The research aims to introduce modular adaptability in camping lights, thereby offering a personalized and efficient lighting solution for campers. The brief idea is to catalyze camping lights that elevate the overall camping experience through functionality, and portability.

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01 Introduction

Introduction

Background

I aim to commence my research by delving into the significance of camping and its gear. This initial step involves grasping the importance and intricacies of camping gear designs.

The images on the right offer a clear portrayal of fundamental camping gear, incorporating resilient materials like bulky cloth, plastics, and metals of specific dimensions. These sturdy items are crafted to endure unpredictable conditions.

The foremost goal of these products is to achieve a sleek, compact, and lightweight design, ensuring easy portability over prolonged periods. In challenging conditions, these items demonstrate resilience against the rigors of natural climatic challenges.

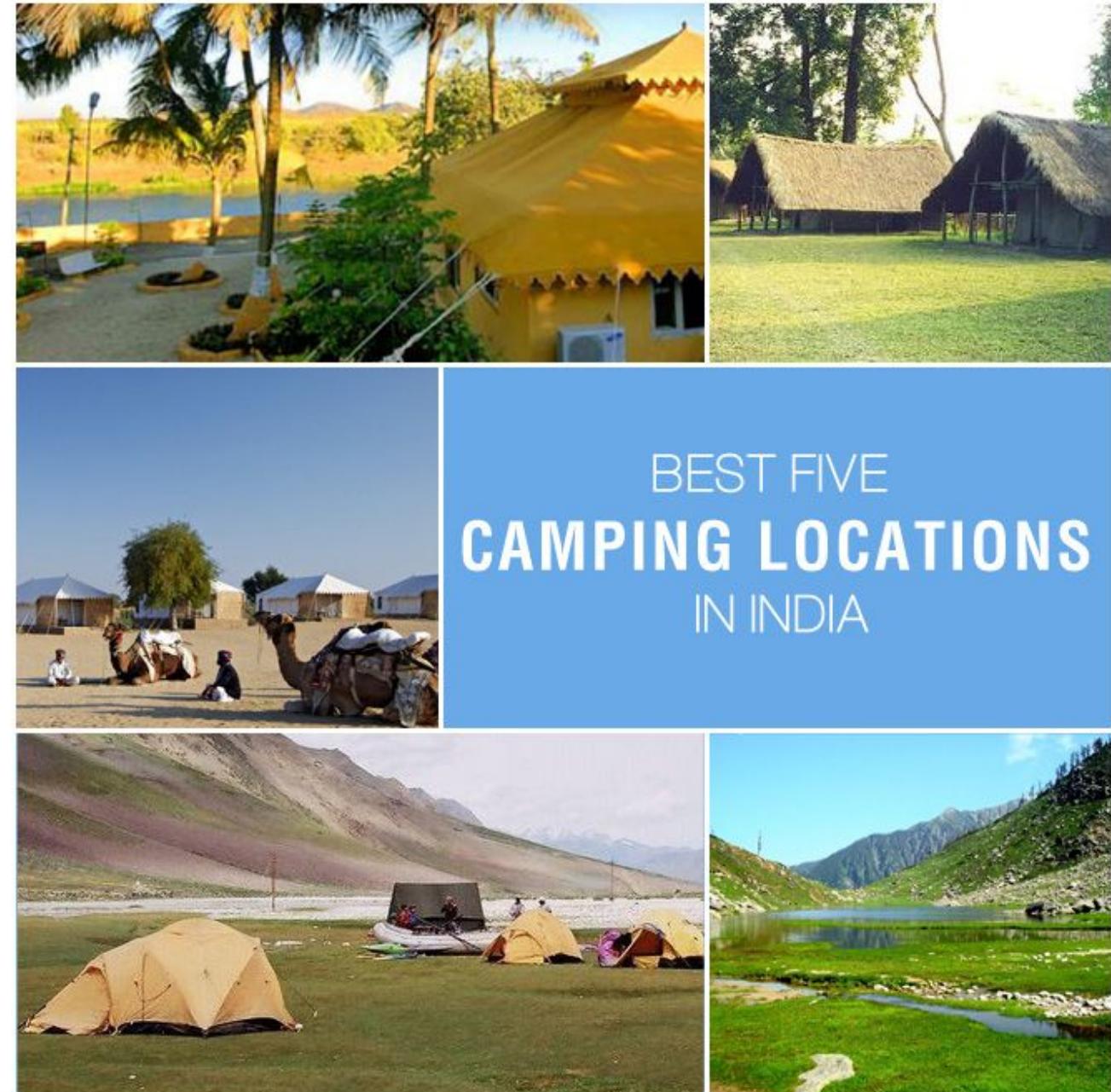
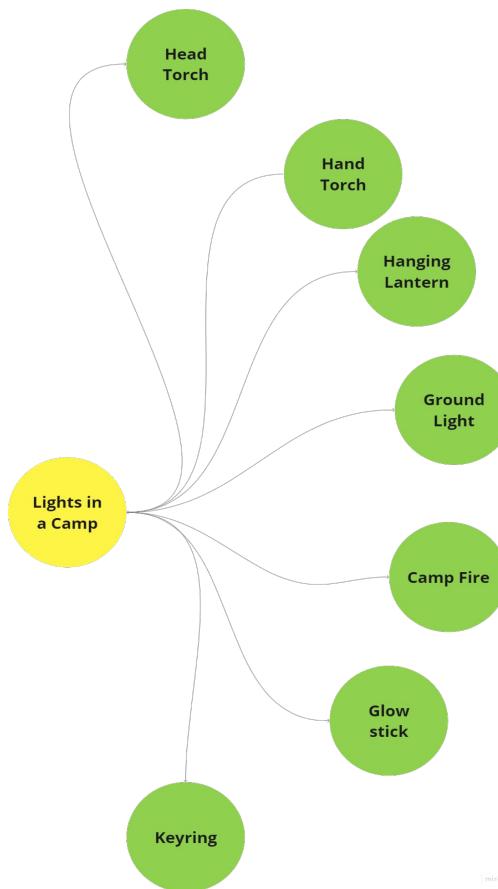
The essential factors are carefully considered and arranged to facilitate easy packing, quick identification, and bold design. Camping and expeditions demand a particular emphasis on grip, visibility, and durability.



Introduction

Camping in India

India offers diverse camping experiences for adventure-seekers. From Rajasthan's sandy expanses to the Himalayan terrains and the scenic Malabar hills in the south, the country provides a rich variety of camping options, catering to every adventurer's taste.



Understanding Camplight Culture

Various types of lights are available in the market, each designed for specific conditions such as emergencies, automotive use, wide illumination, and more, tailored to particular purposes. In a similar vein, this project revolves around the fundamental idea of providing lights specifically crafted for camping scenarios.

A camping light should have a sturdy balance, offering durability to withstand the rigors of outdoor environments. Furthermore, it should be adaptable to various climatic conditions, providing reliable illumination. These qualities enhance the longevity of the camping light.



Convenience



Exploration



Safety/ long lasting



Camping friendly



Innovative

Prominent Brands for Camping

Some prominent Light manufacturing companies in Global level and sold in India

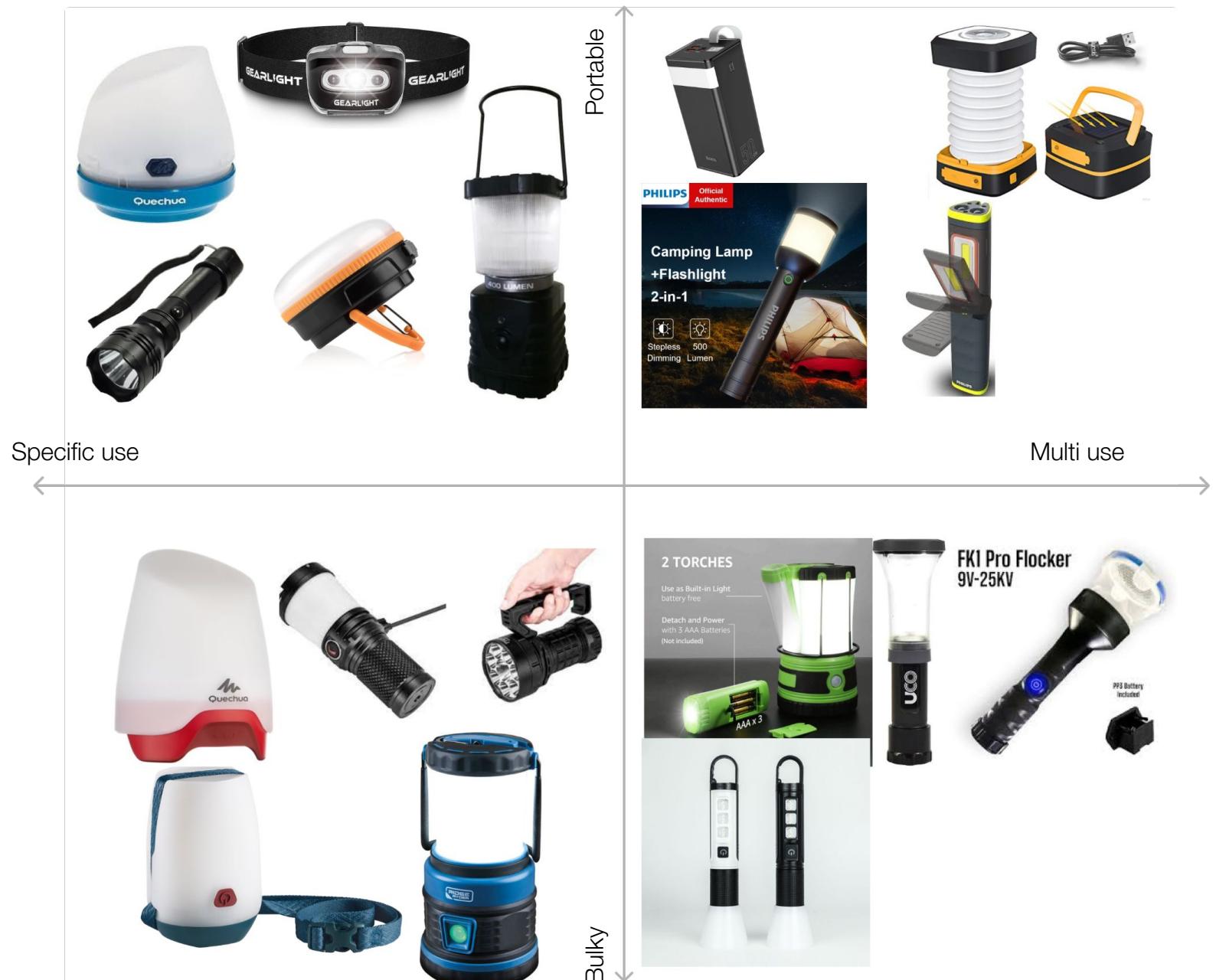
Brands mentioned below are more established in India and have a better brand value and purchases.



Market study

These are camping lights which are divided as per usage are sorted as per low to high in mass and purpose of use

All the characters pertaining to flashlights , headlamps are listed below to

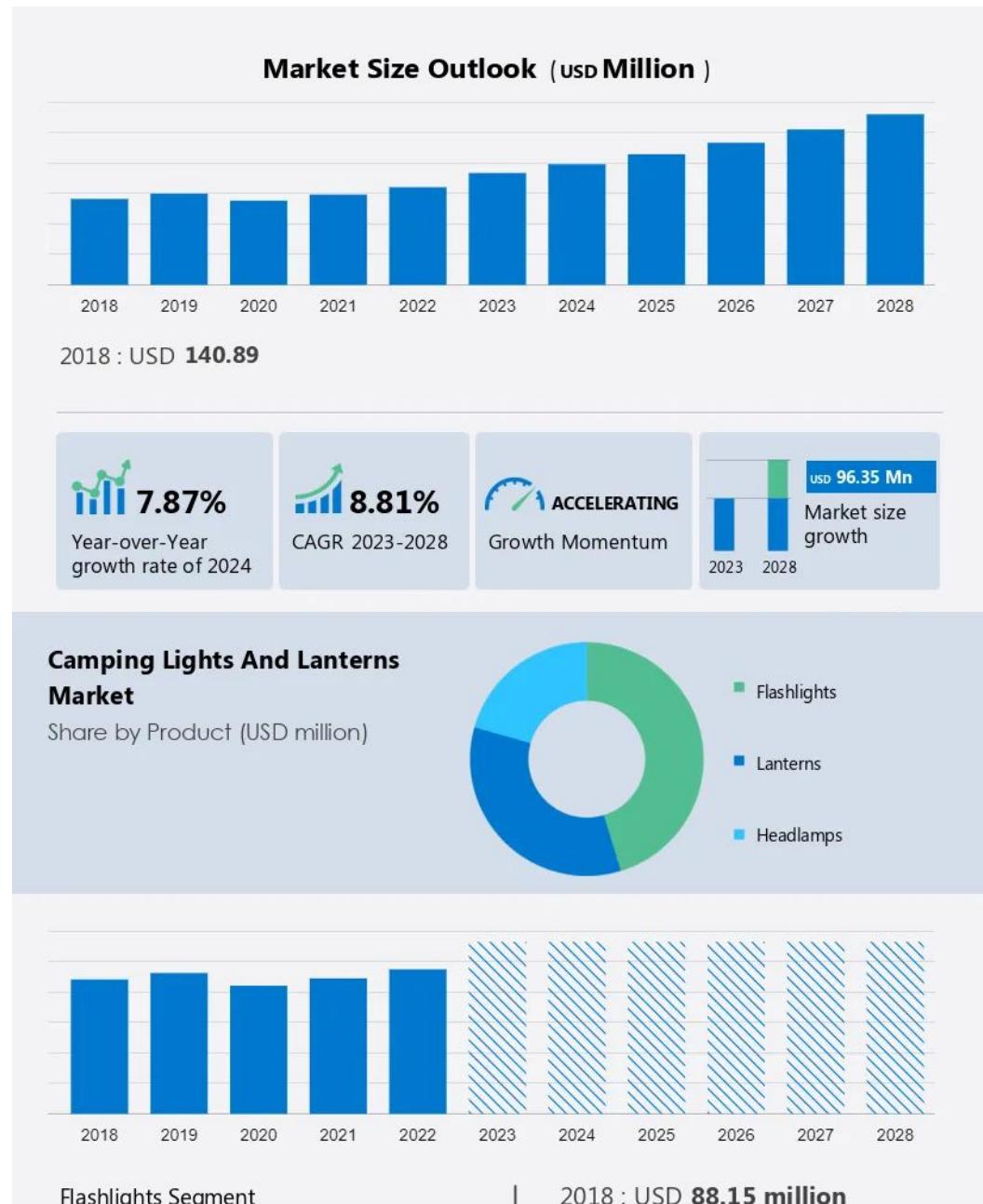


Camping light Market size

There is an increasing growth in the market rate and in the span of next 5 years there shall be an upward trend

There is an increased scope of people using lanterns which have diffused light and flash flights for emergency usages.

Headlamps are used for the sole purpose of camping and for lesser sales as per the pie chart on the right.

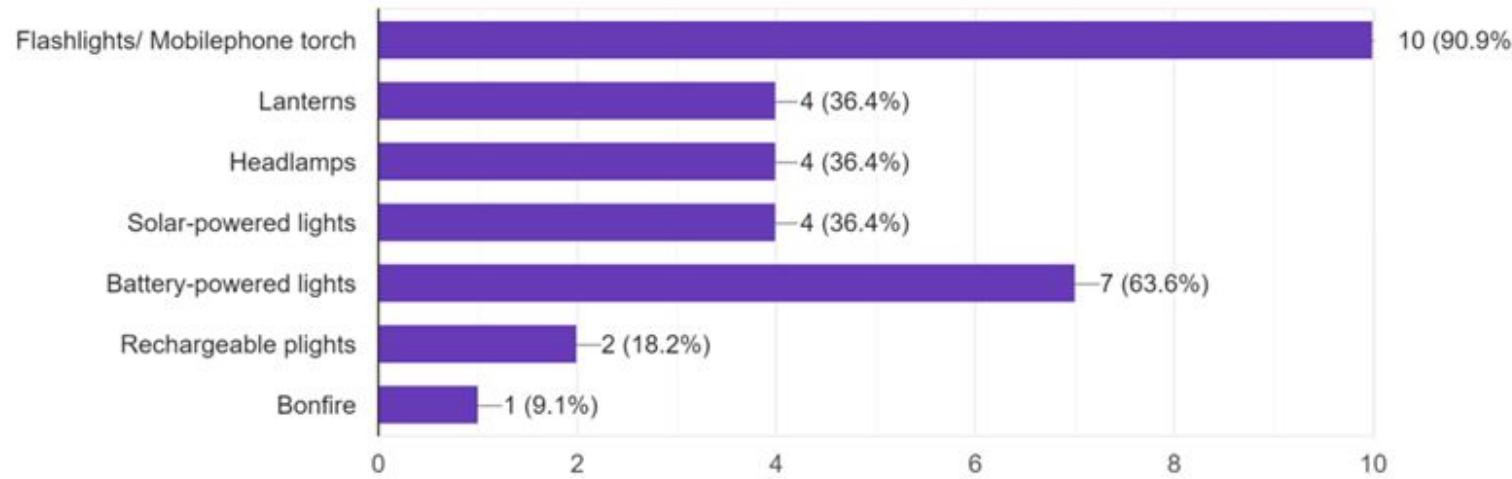


02 User studies

Questionnaire

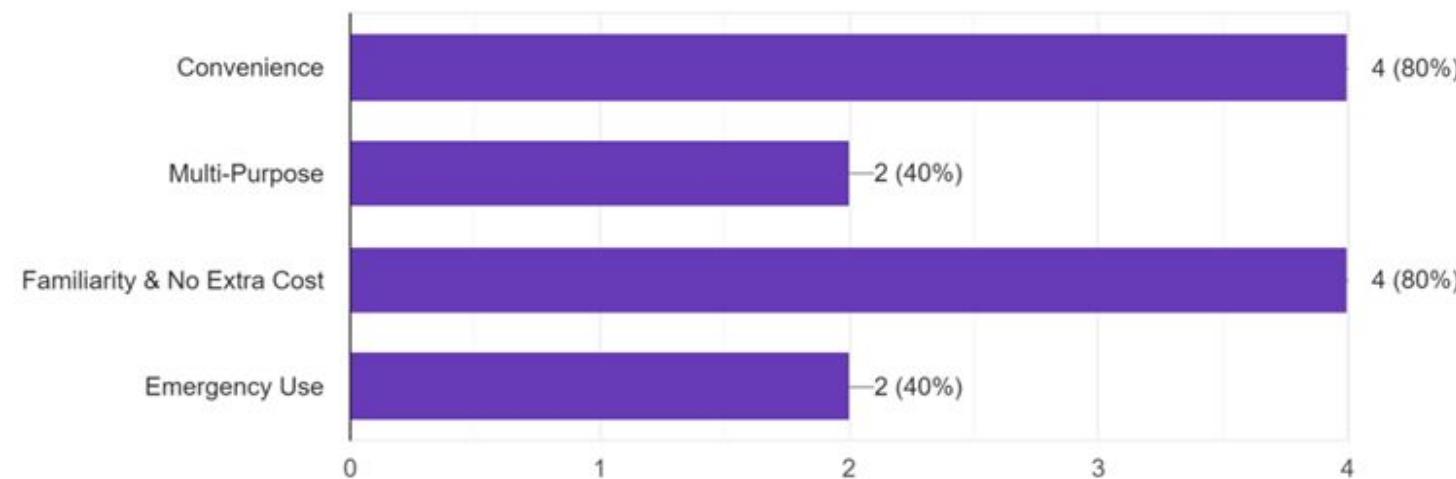
What types of lighting solutions do you typically use during extended camping trips?

11 responses



What do you like most about using your mobile phone flashlight for camping?

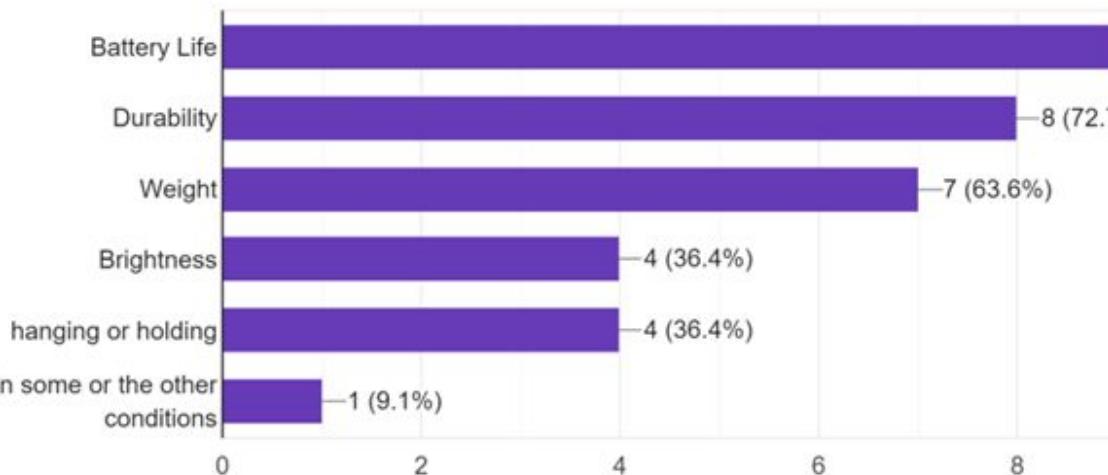
5 responses



Questionnaire

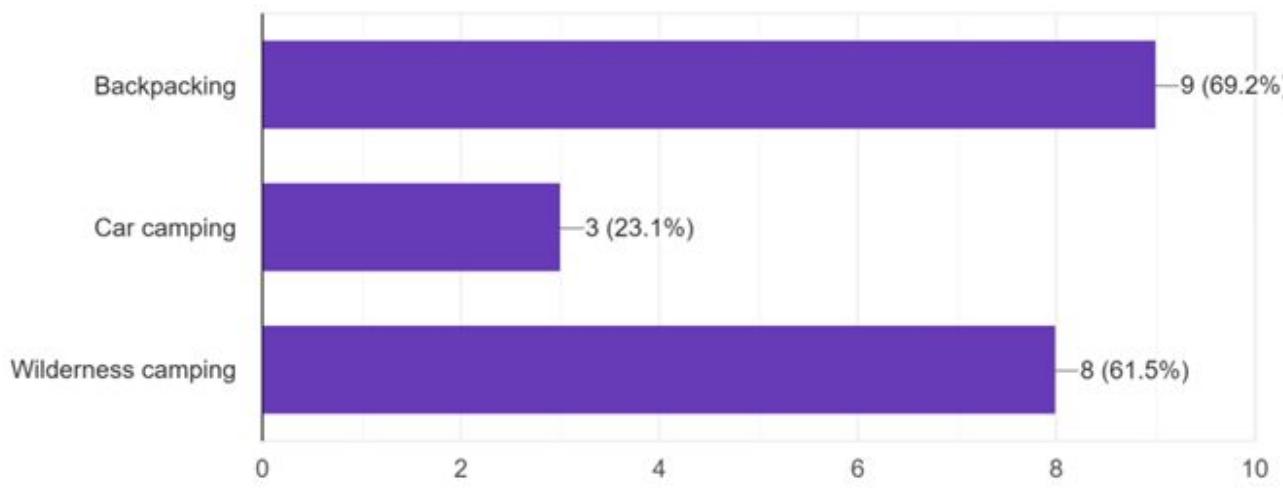
When using lighting during extended camping trips, what challenges have you faced?

11 responses



What type of camping do you prefer?

13 responses



Night trek with torch and lamps

There were some day to day experiments that were conducted in the meantime of the process. This is to understand how can a device have better sources of operation during a camping experience.

There were some unreliable considerations that were pointed out before and during the time of identifying the problems and here are the consideration and set to Design brief

“The aim of this project is to understand and develop a camping light solution where the light can solve problems in multiple situations during a camping and night hiking experience.”



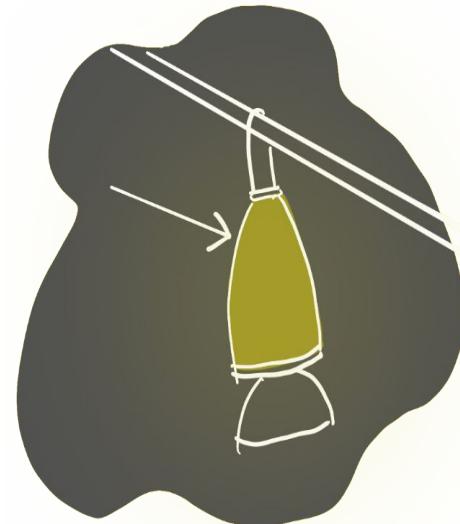
Key insights



Finding the torch in dark



Adjustment in the dark



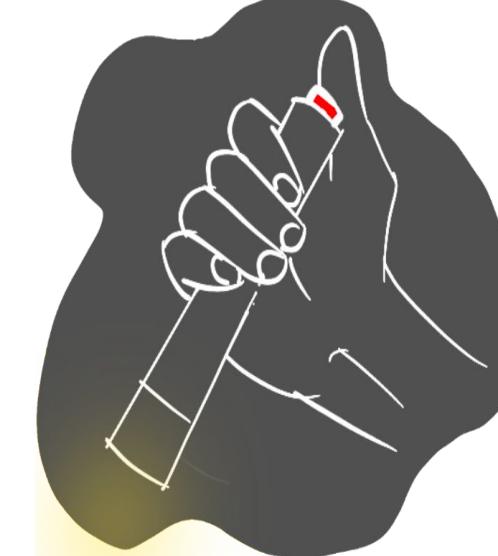
Risk of not holding properly



Holding and carrying



To much Brightness

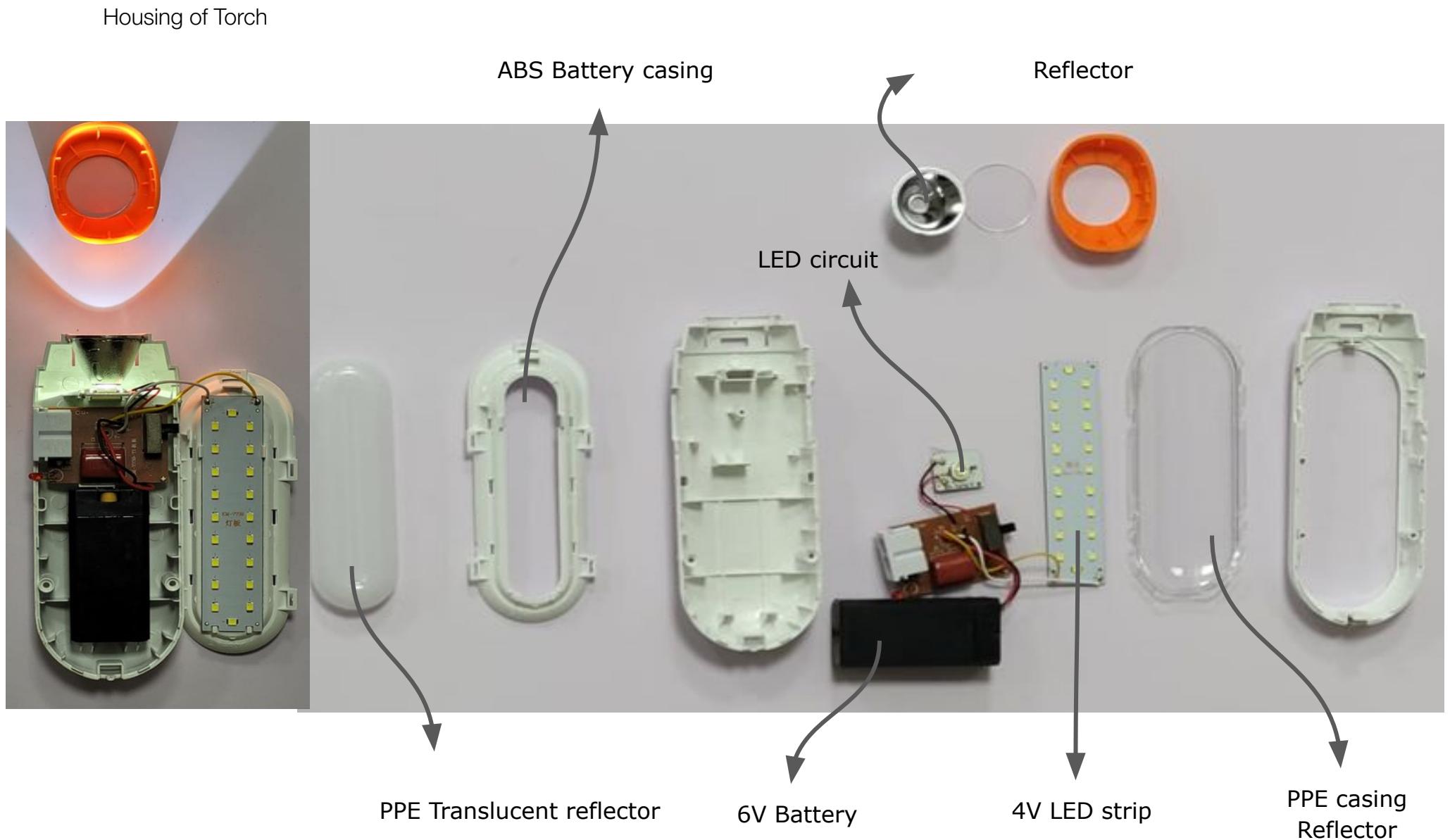


More of Button work

Mind Mapping



Mechanism study



02 Designing the Product

Design Objective

To Design a camping light equipment which can be used for the purpose of both flash light and camping light(diffused light) and enhance portability

Target Users

Camping personal who go in groups and also for individuals who reside more time in enclosed spaces

Brief

- To design a camping light which can
- Enhance focus
- Distribute light evenly
- Easy control
- Flexible to carry
- Display charging condition in light

Design scope and innovation

Electric lanterns are usually the most popular option for campers since they are efficient, light, and safe. However, the problems are that they are sometimes too bright and in remote locations it is too harsh to put bright light as they disturb the nocturnal lives.

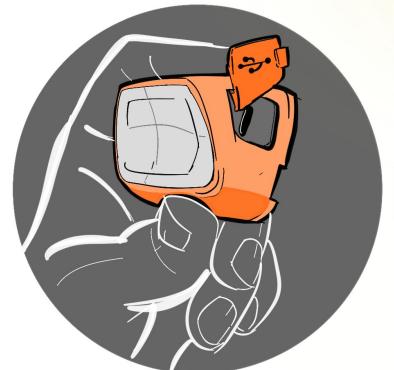
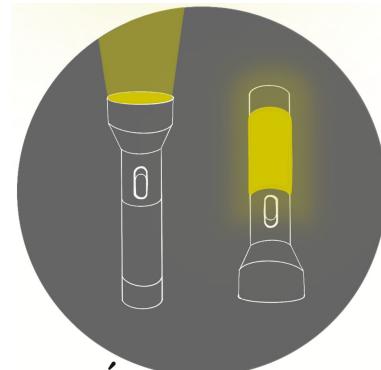
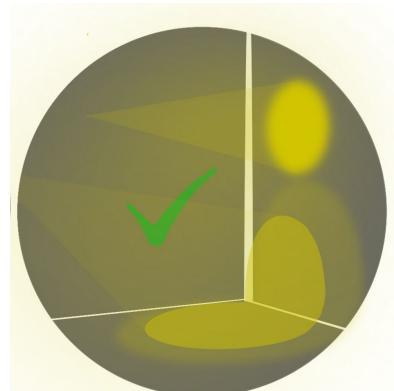
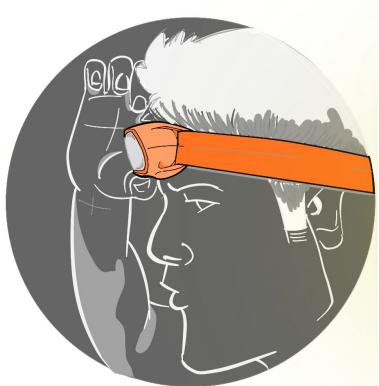
In camping lights and lanterns, these are the prominent features that must be incorporated:

- red lights -better night vision
- yellow lights -keep insects away
- SOS mode -emergencies

flashlights have been added.

These novel features allow market participants to diversify their portfolios. Furthermore, many competitors are emphasizing the use of recycled materials and fabrics in their products.

- Reduce button usage
- More diffused light
- Easily available in dark
- Easy charging spot
- Interchangeable head lamp



Circuit study

The Normal torches work on button and switch and thus this is a working testing of introducing a potentiometer for controlling the intensity of light .

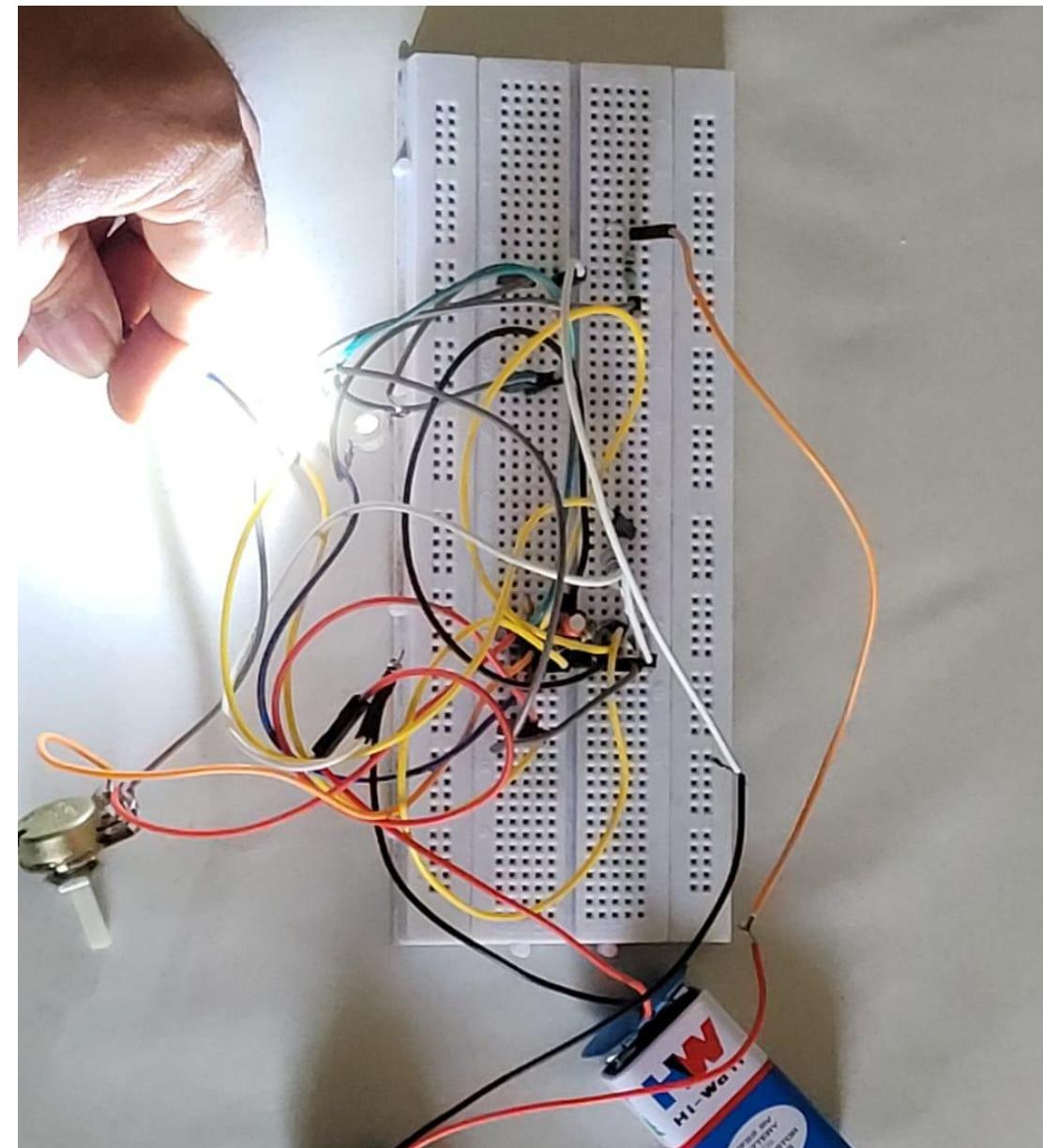
The circuit consists of

- LED units
- Battery
- IC Circuits
- Potentiometer

The Performance factor here is to regulate the intensity of light using a regulator dial which is a potentiometer

Potentiometer can give two options

- Strobe effect of light
- Increase and decrease the intensity of light

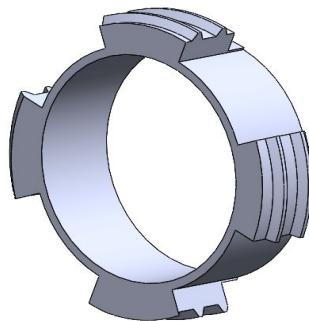


03 Ideations

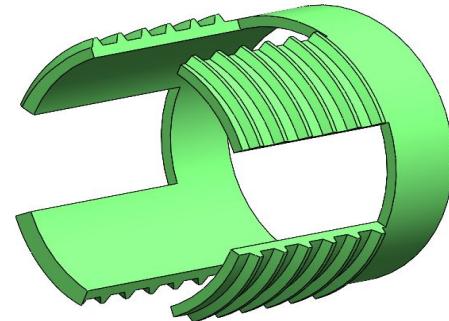
Ideation-01

Mechanism-01

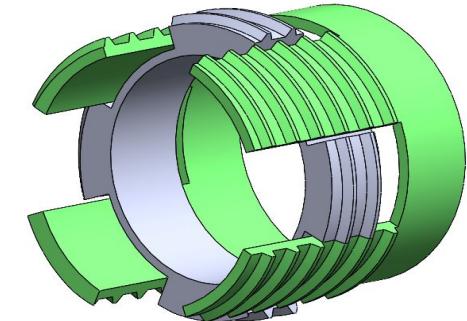
The primary concept of the torch is to **zoom to focus** come up with the idea of increasing focus and intensity just by introducing a regulator in the housing of the torch. Thus one can increase the focus and also increase and decrease brightness.



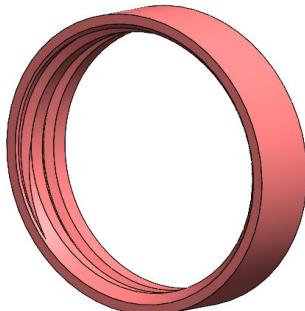
Light source Ring



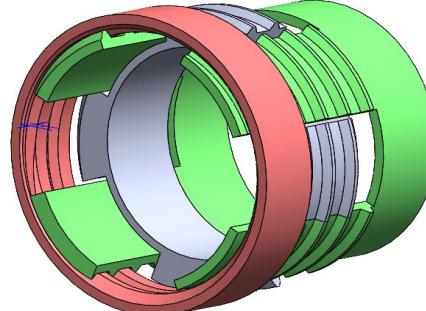
Housing Gear



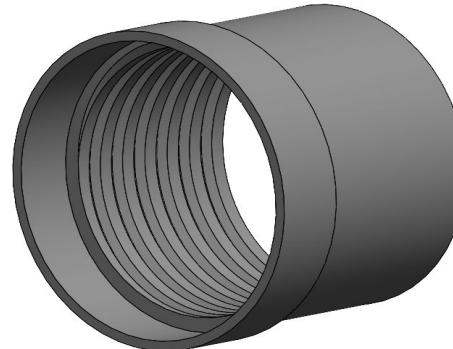
Assembly of light as fixture



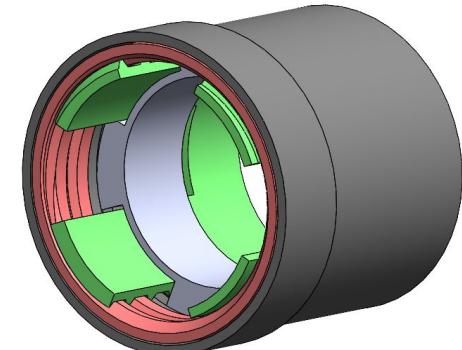
Rotate to zoom



Housing the gear

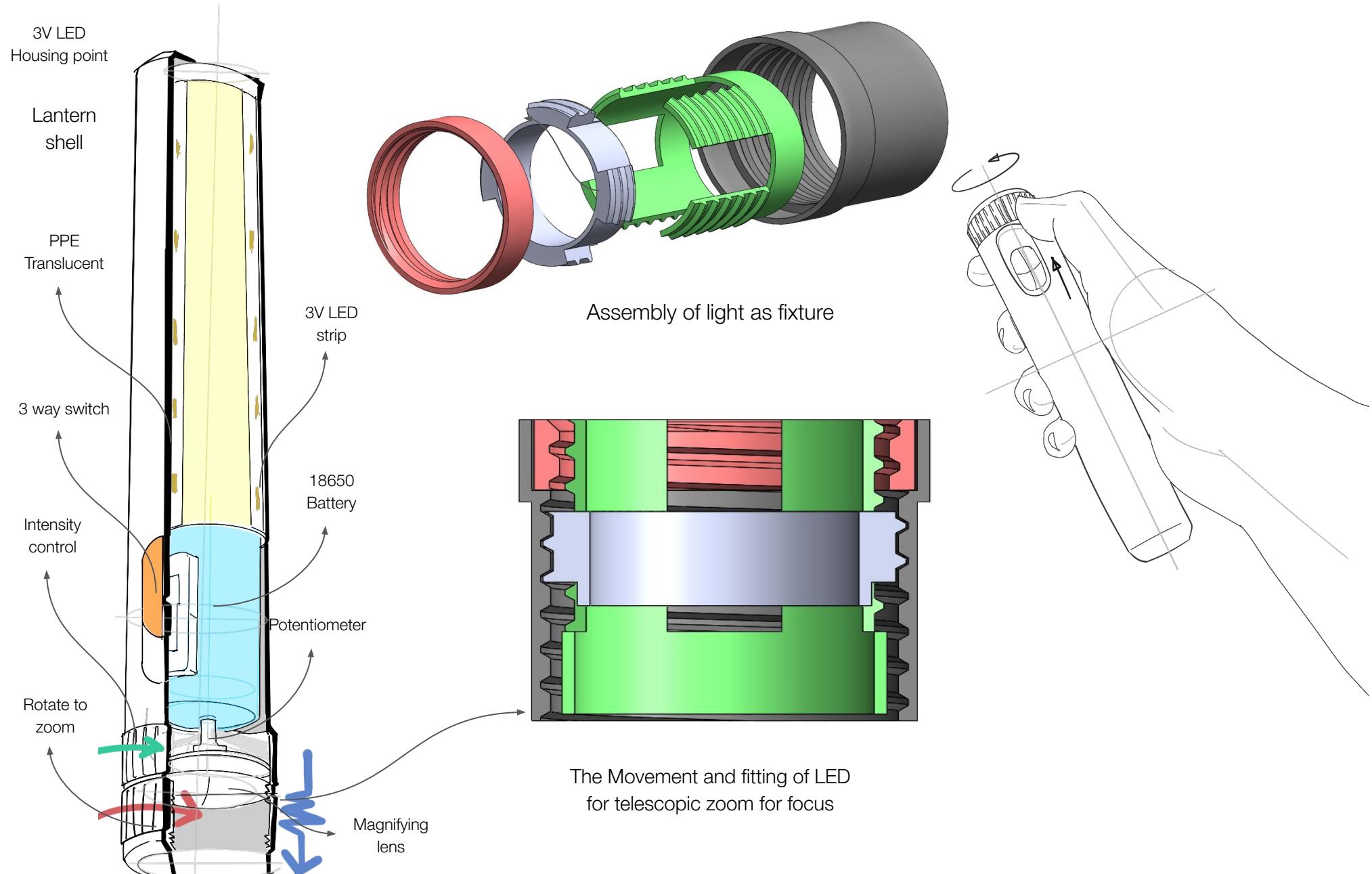


Fixed Shaft



Gear Assembly

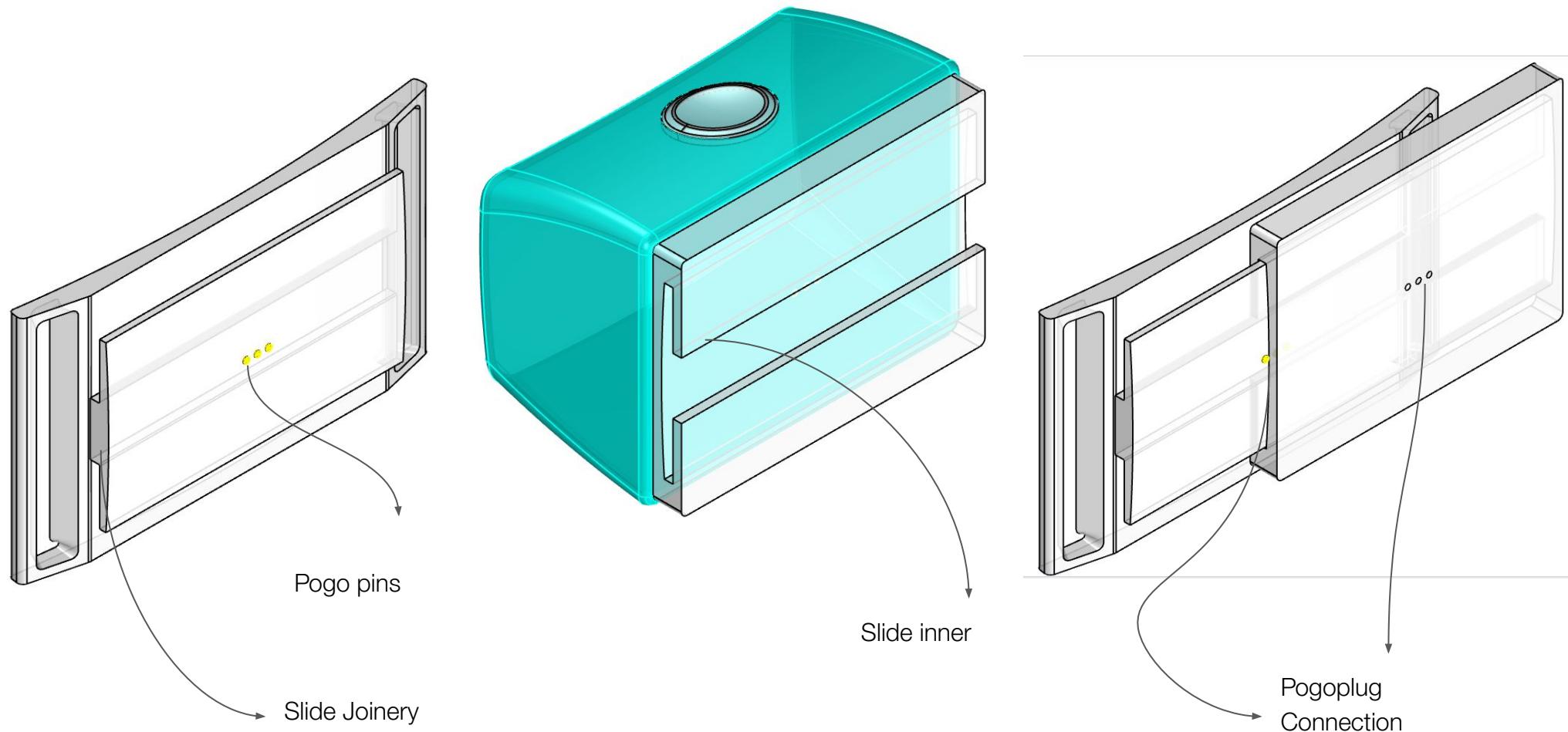
Ideation-01



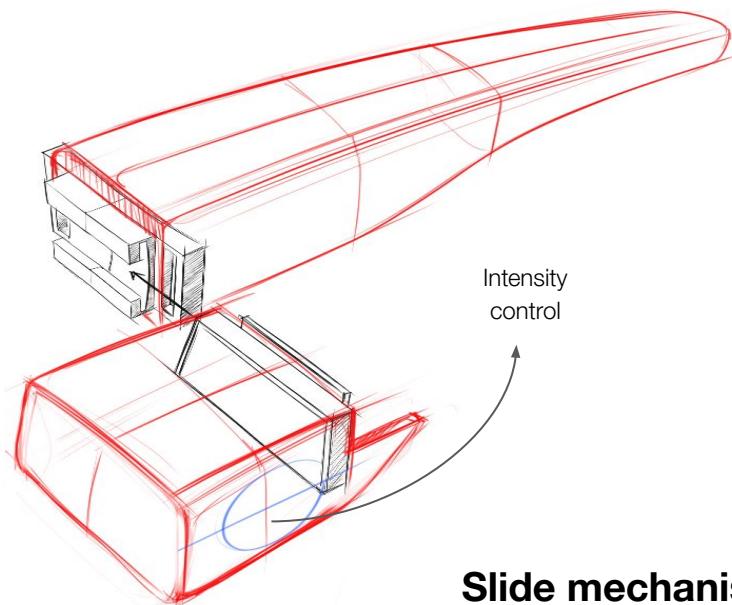
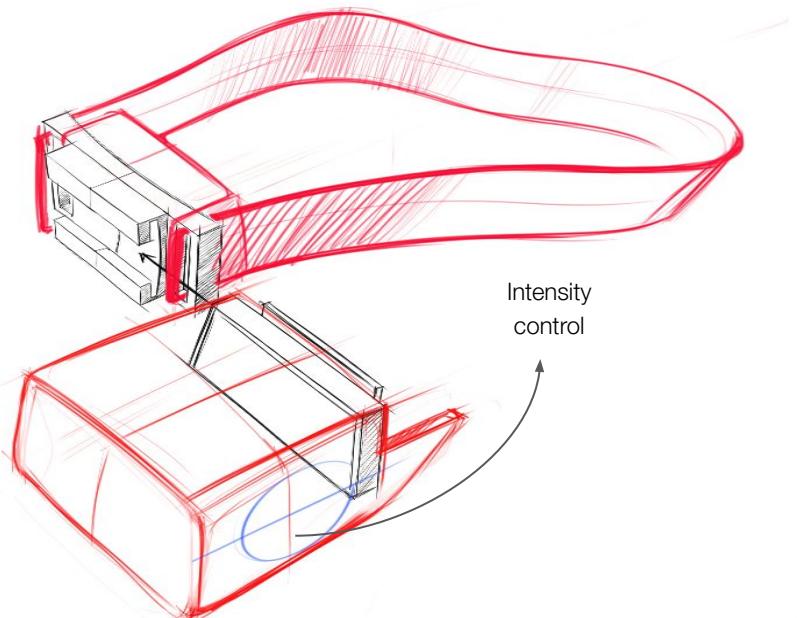
Ideation-02

After coming up with the iterations the Head of torch separates with battery and gets operable with this housing Mechanism.

This is a Pogoplug and slide mechanism



Ideation-02



Slide mechanism

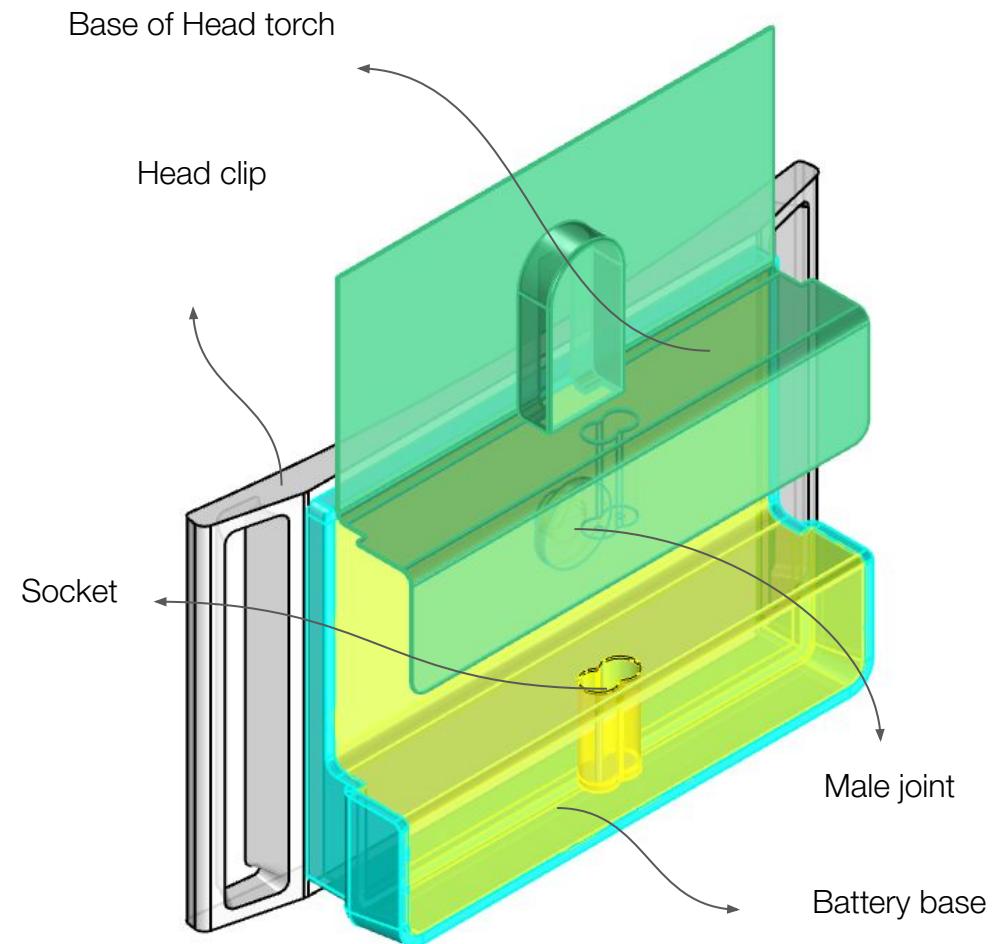
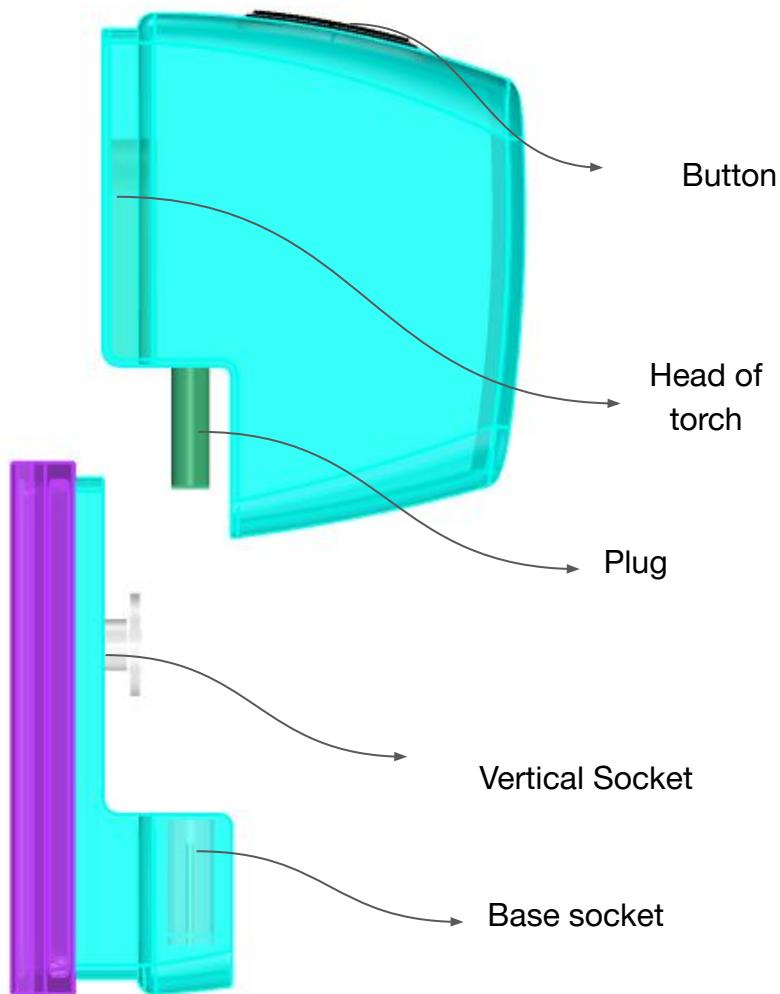
The Slide in Mechanism is not thoroughly stable at design and has the phenomenon to slide and fall and This is a Pogoplug and slide mechanism is not a through stiff mechanism



Ideation-03

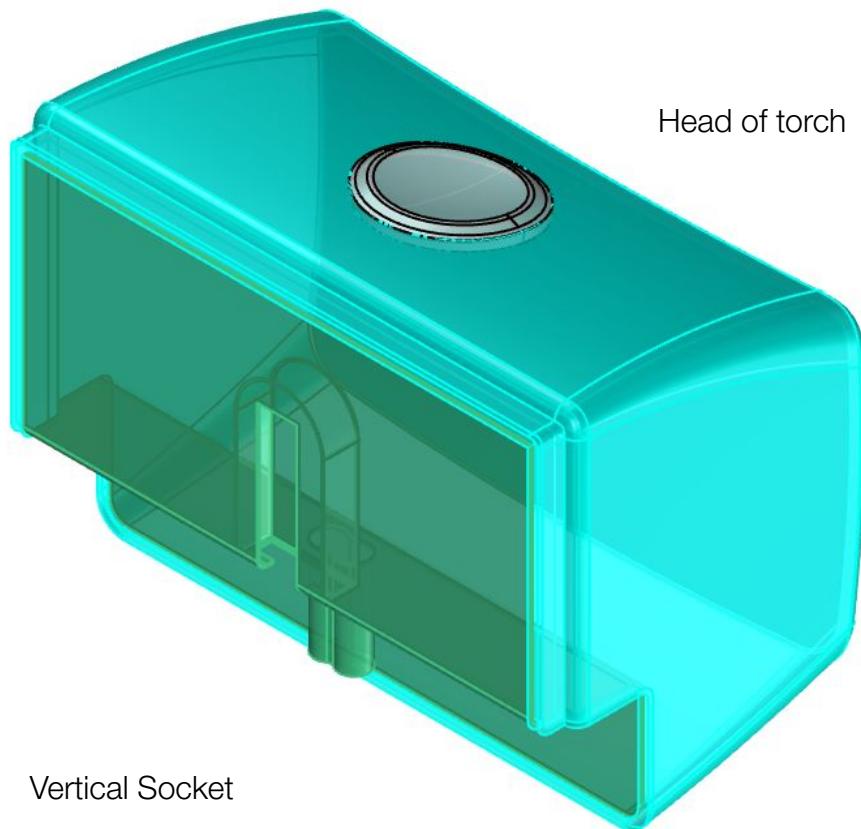
After coming up with the iterations the Head of torch separates with battery and gets operable with this housing Mechanism.

This is a Plug and socket mechanism



Ideation-03

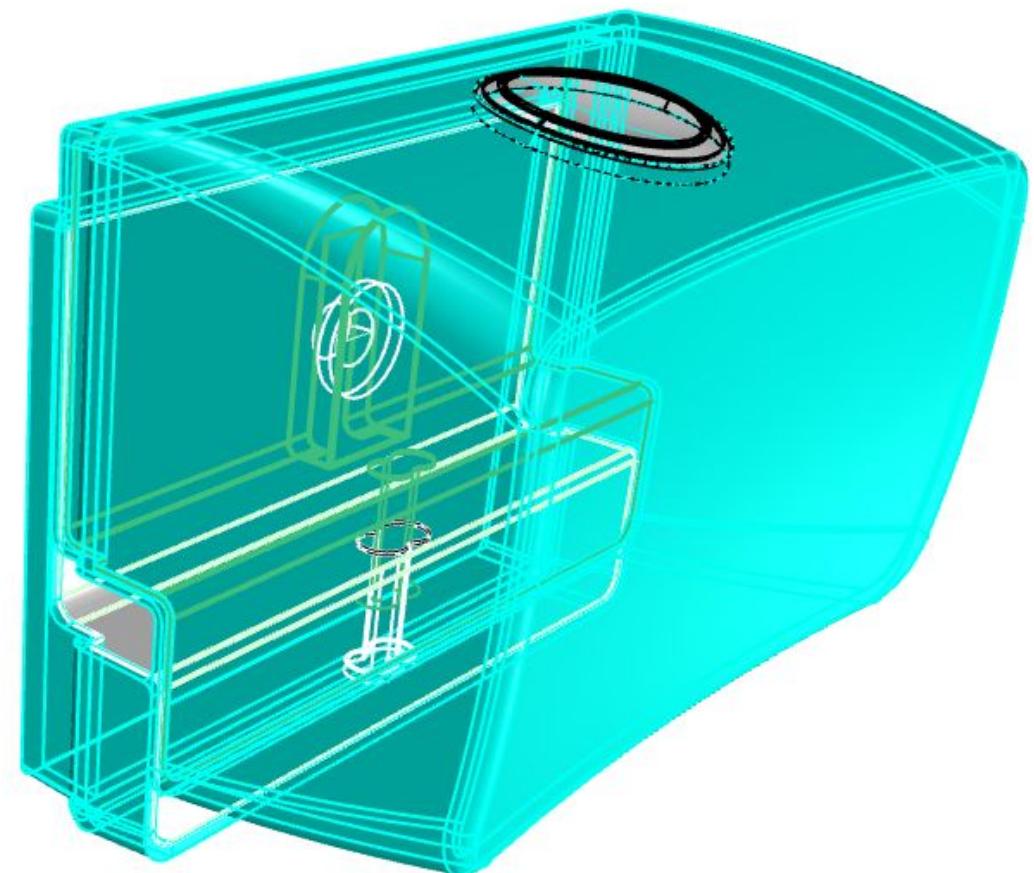
The Plug houses precisely and helps the battery to charge from main battery of torch



Head of torch

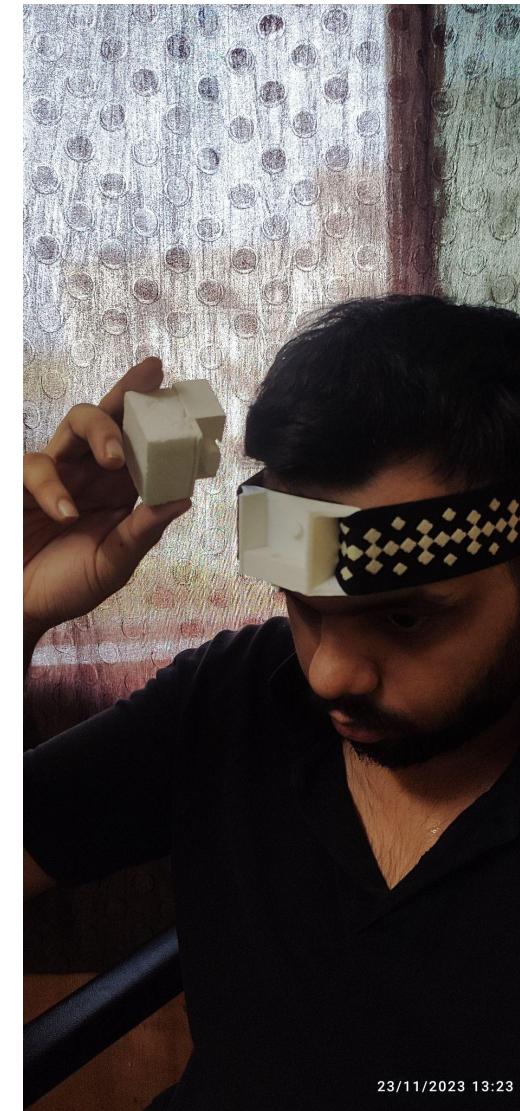
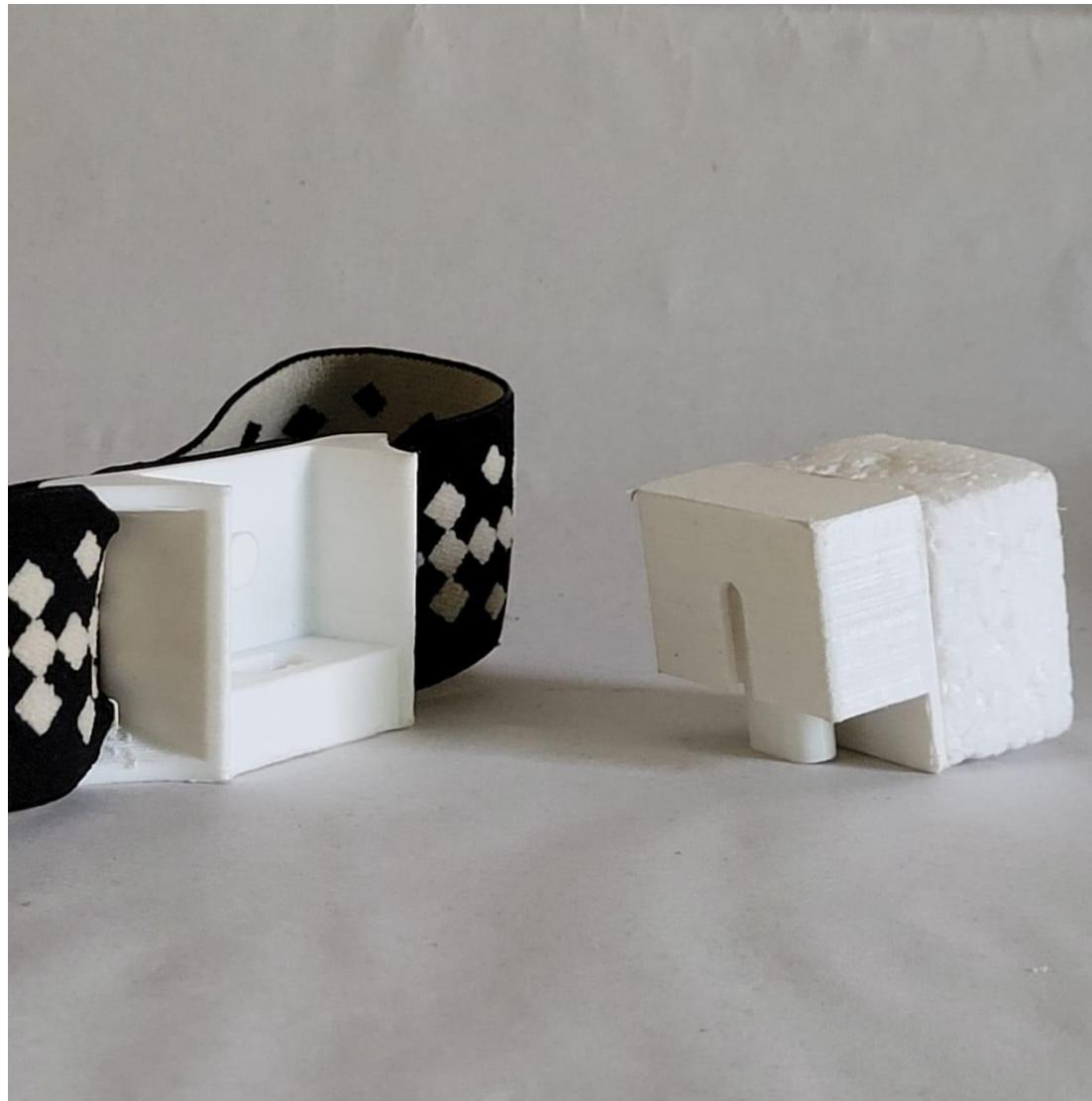
Vertical Socket

Male Joint



Housing of the Head of the torch

Ideation-03

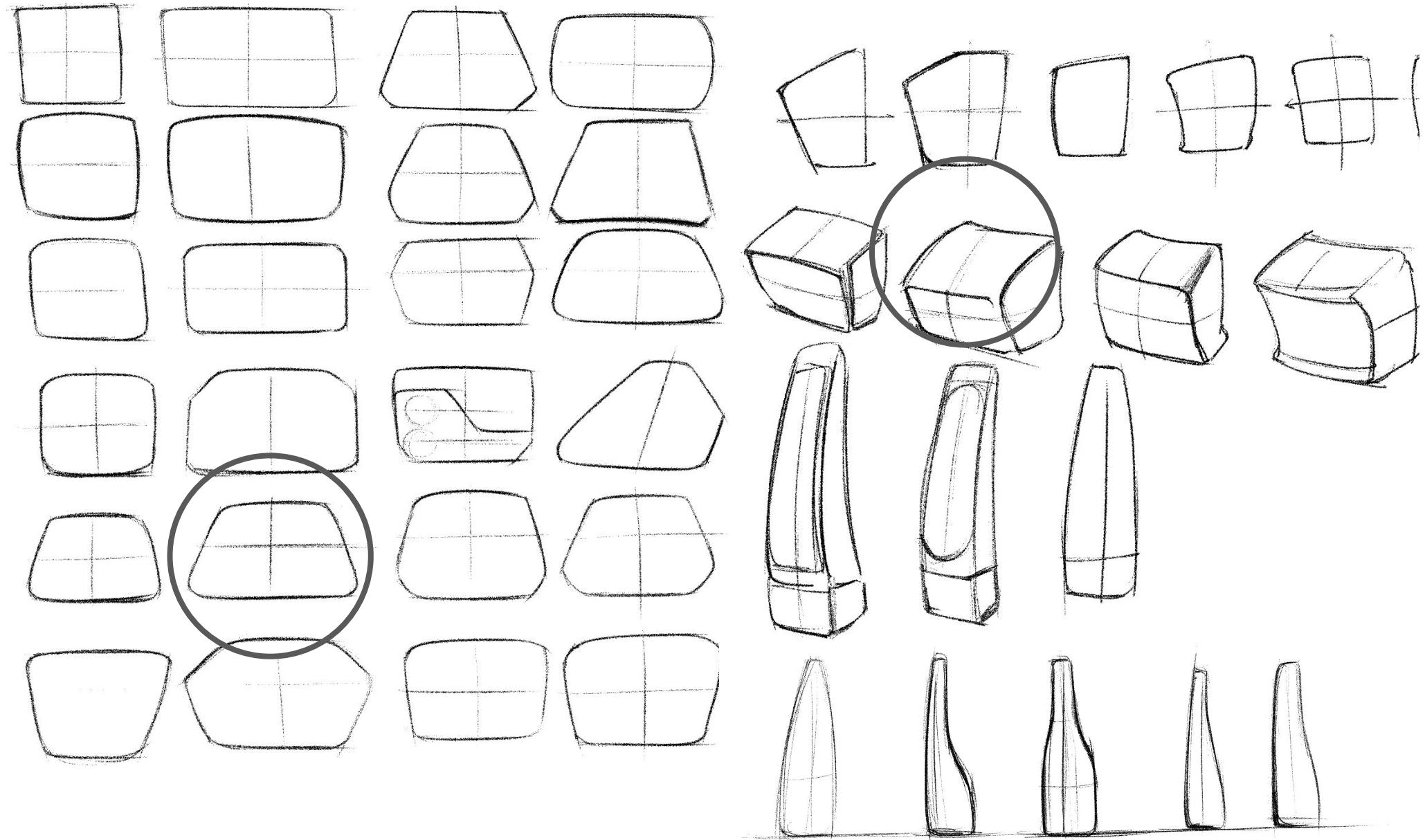


04 Final Ideations

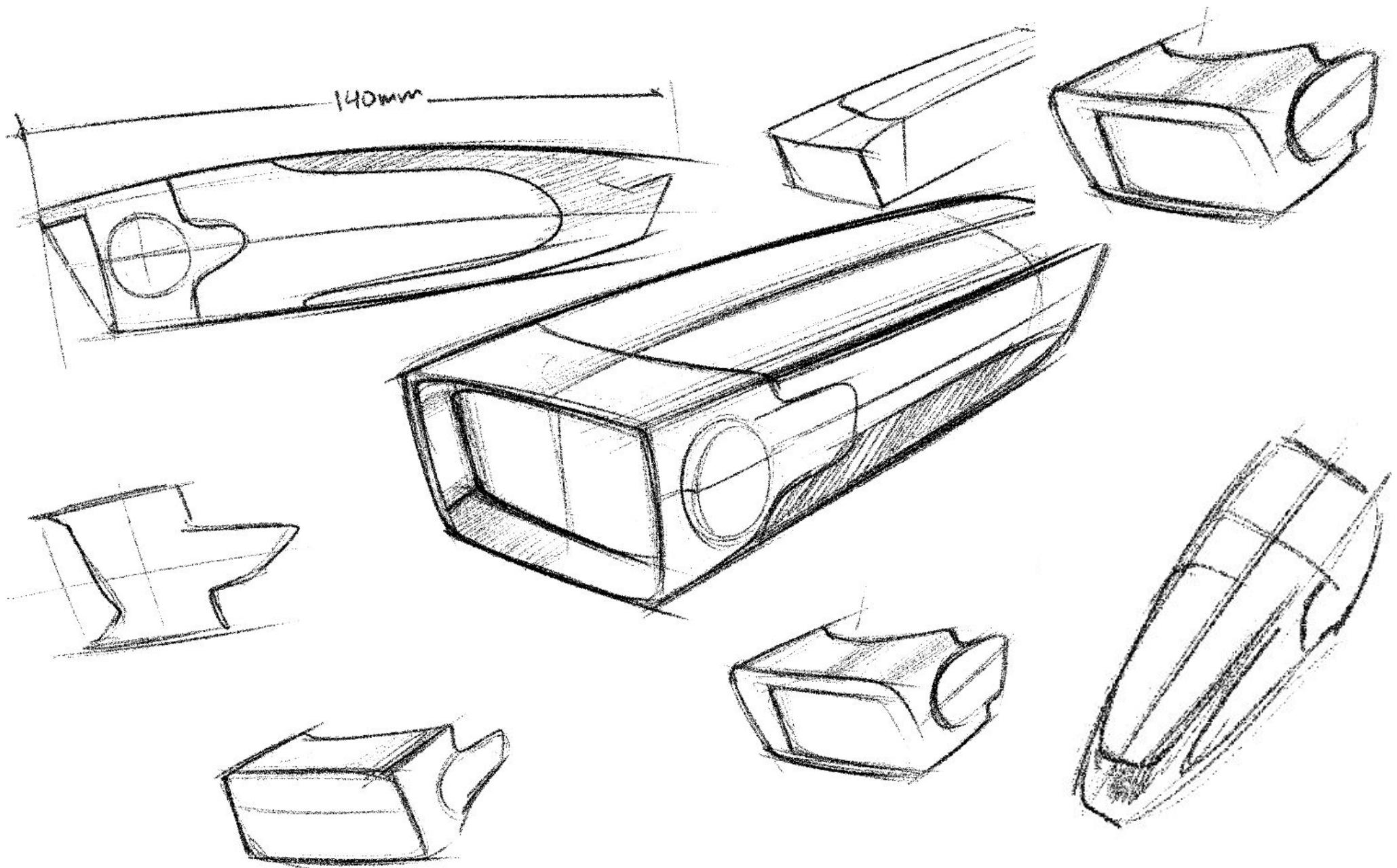
Mood Board



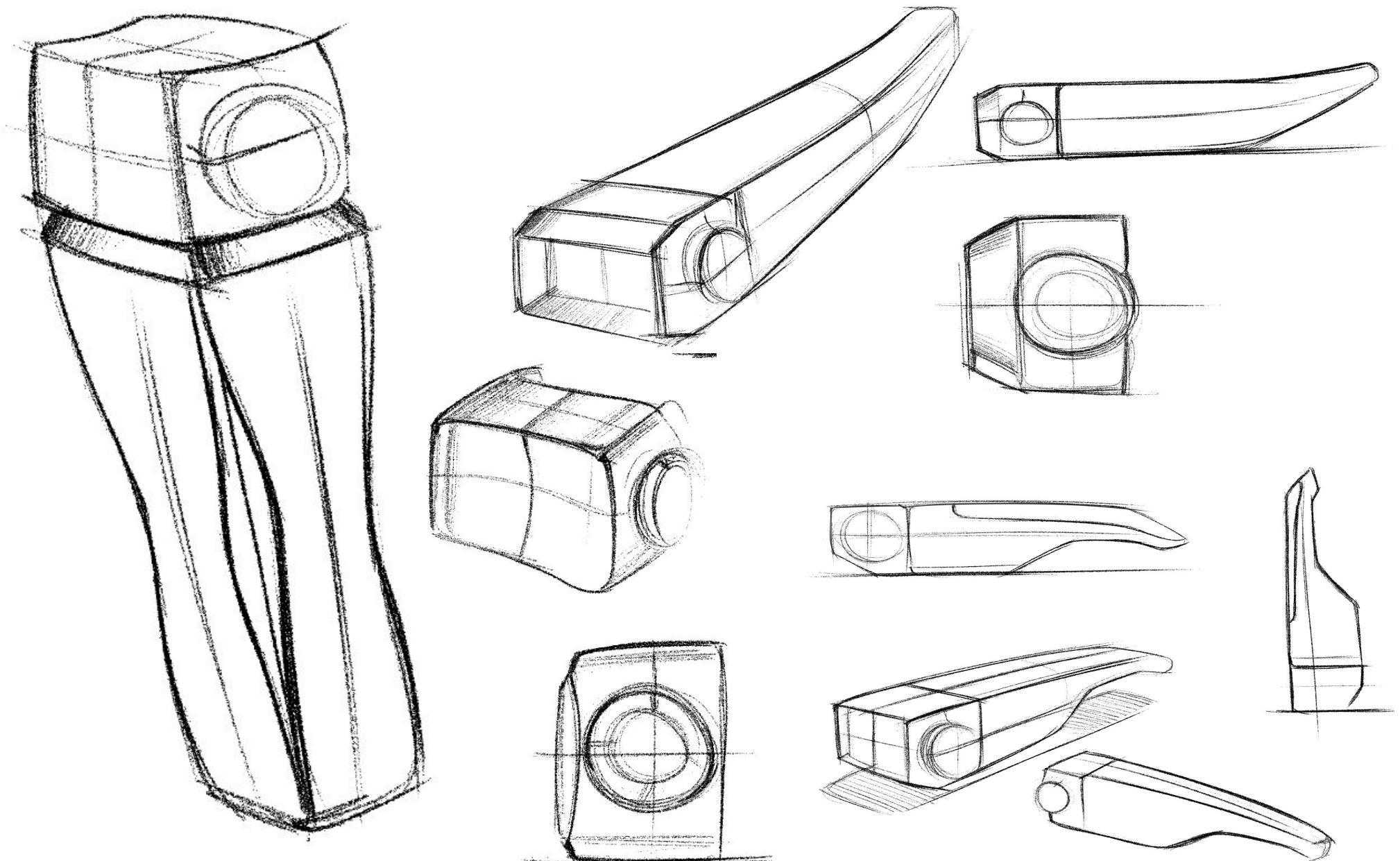
Form Exploration



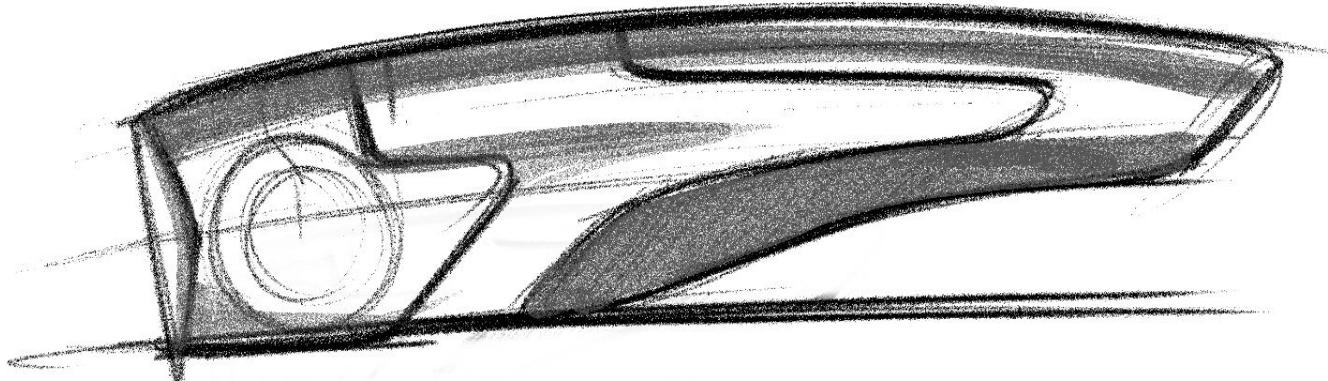
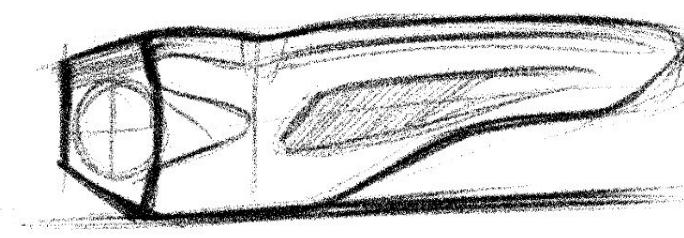
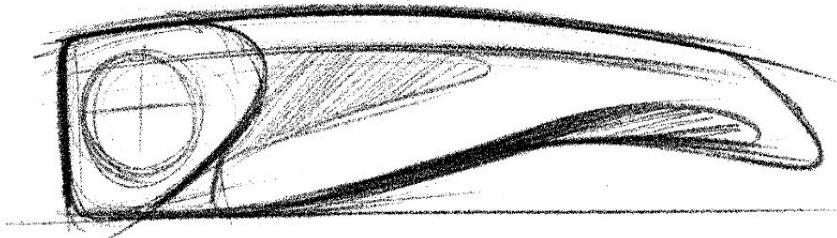
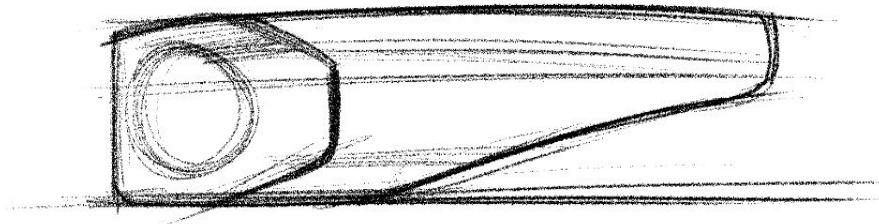
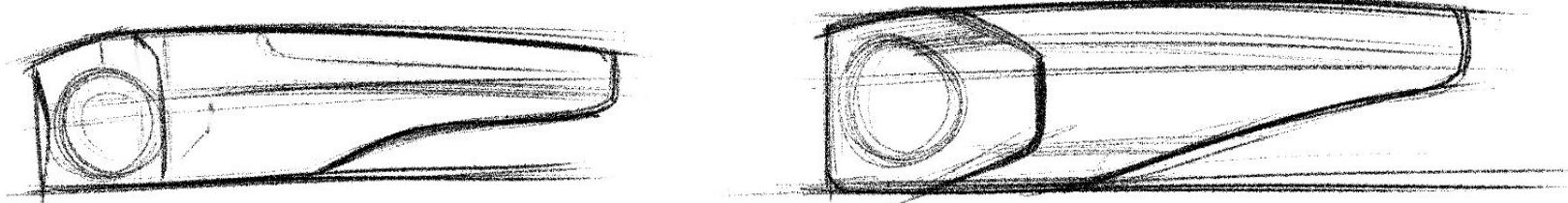
Form Exploration



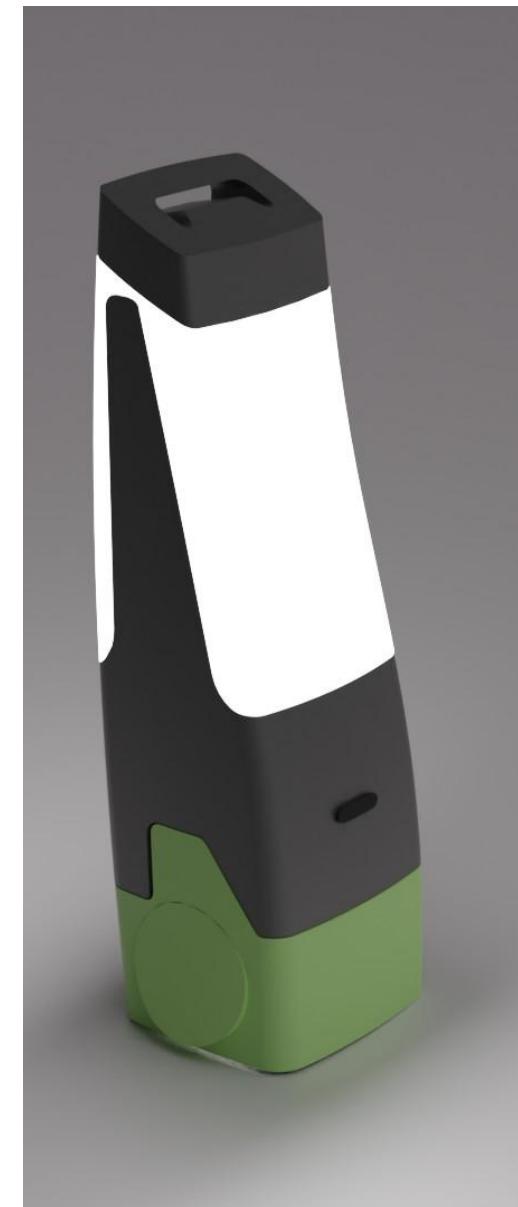
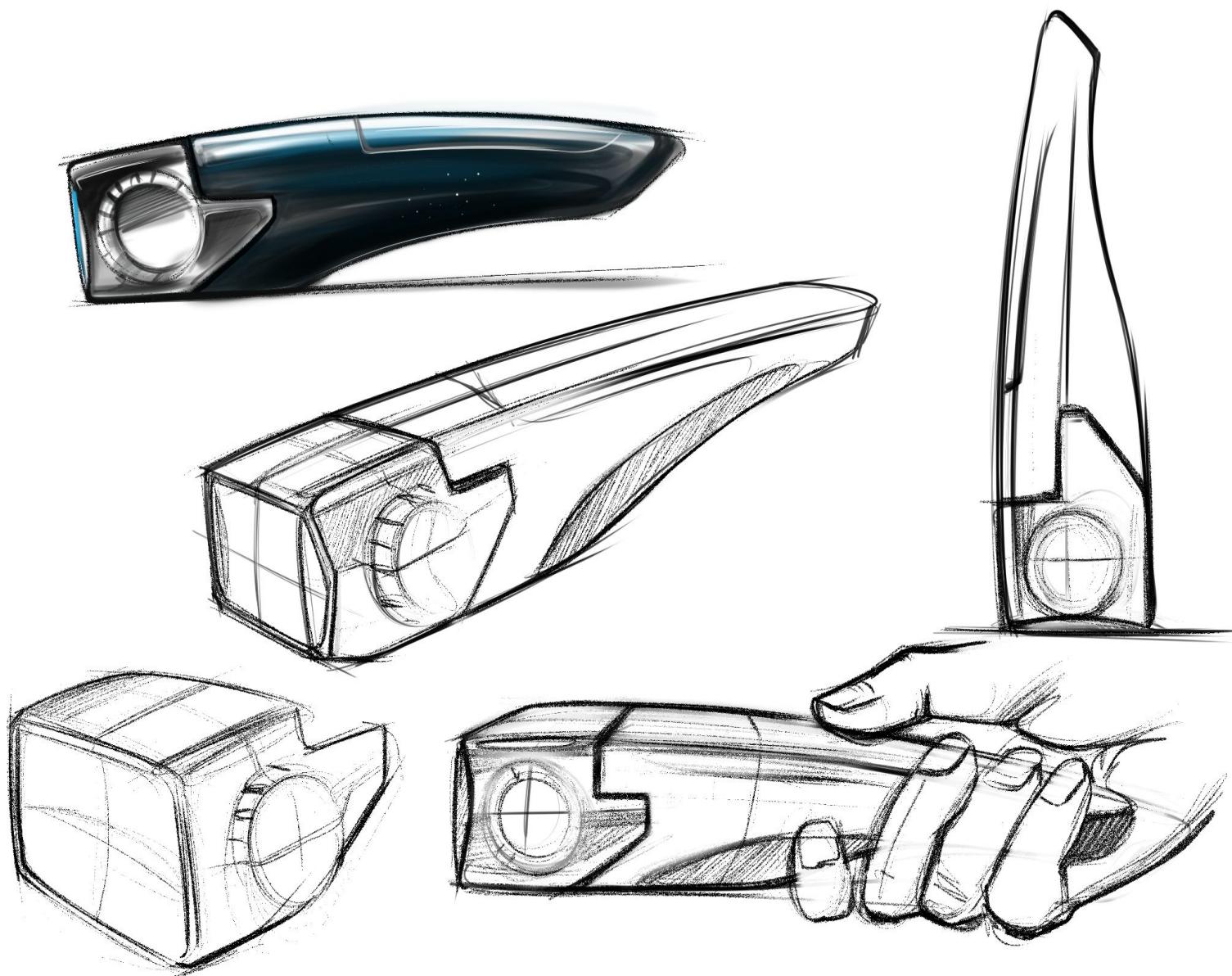
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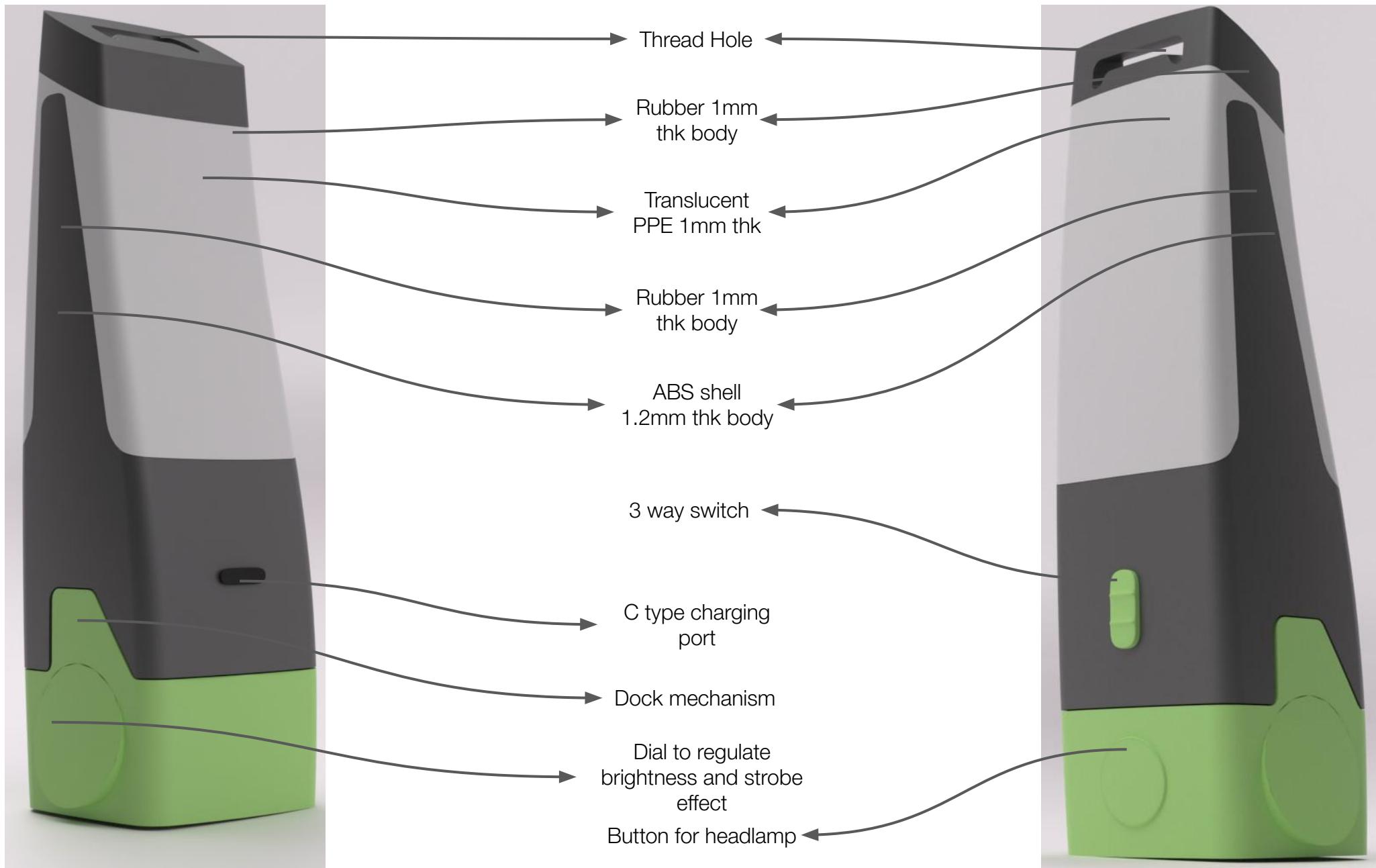
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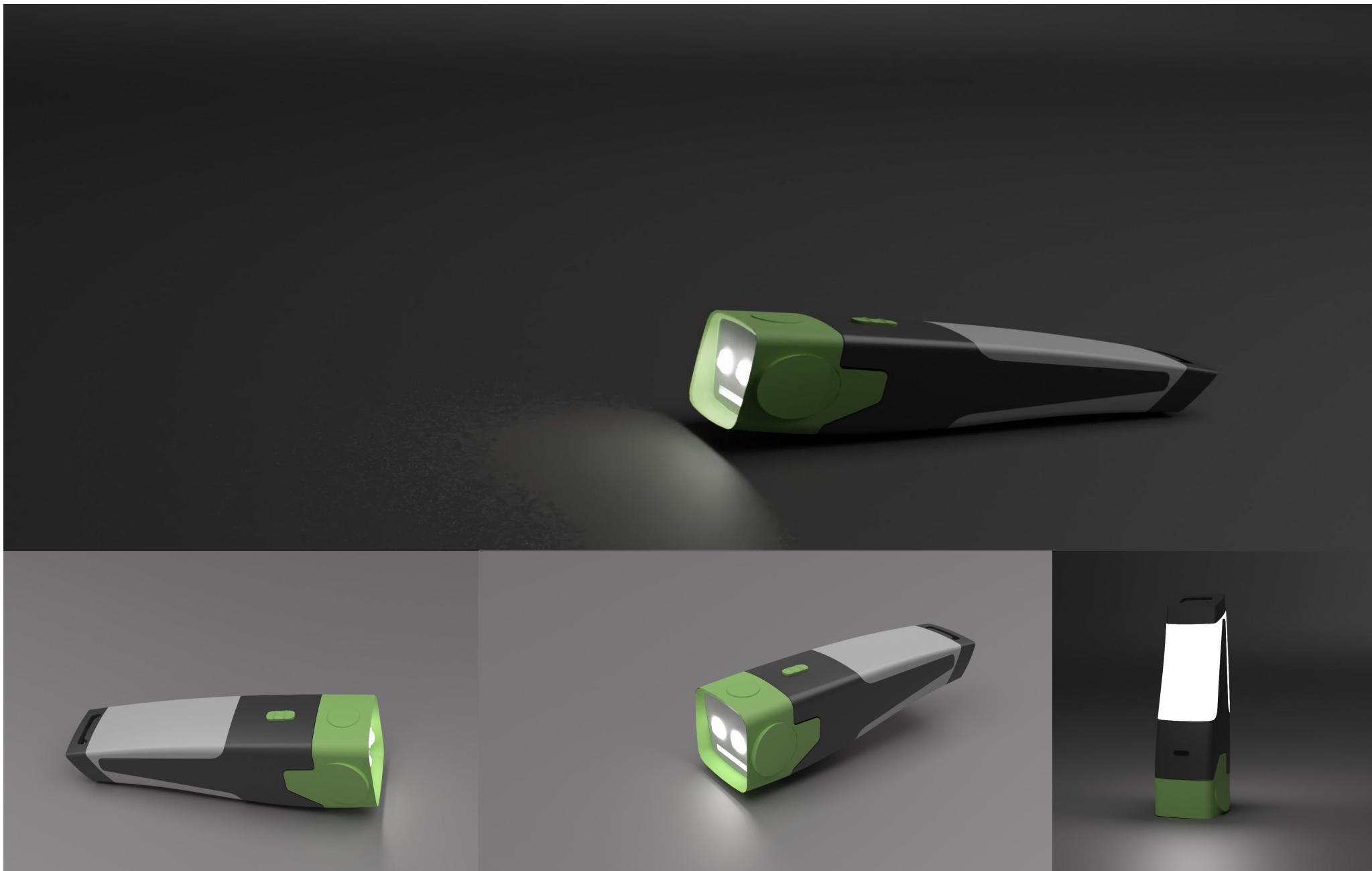
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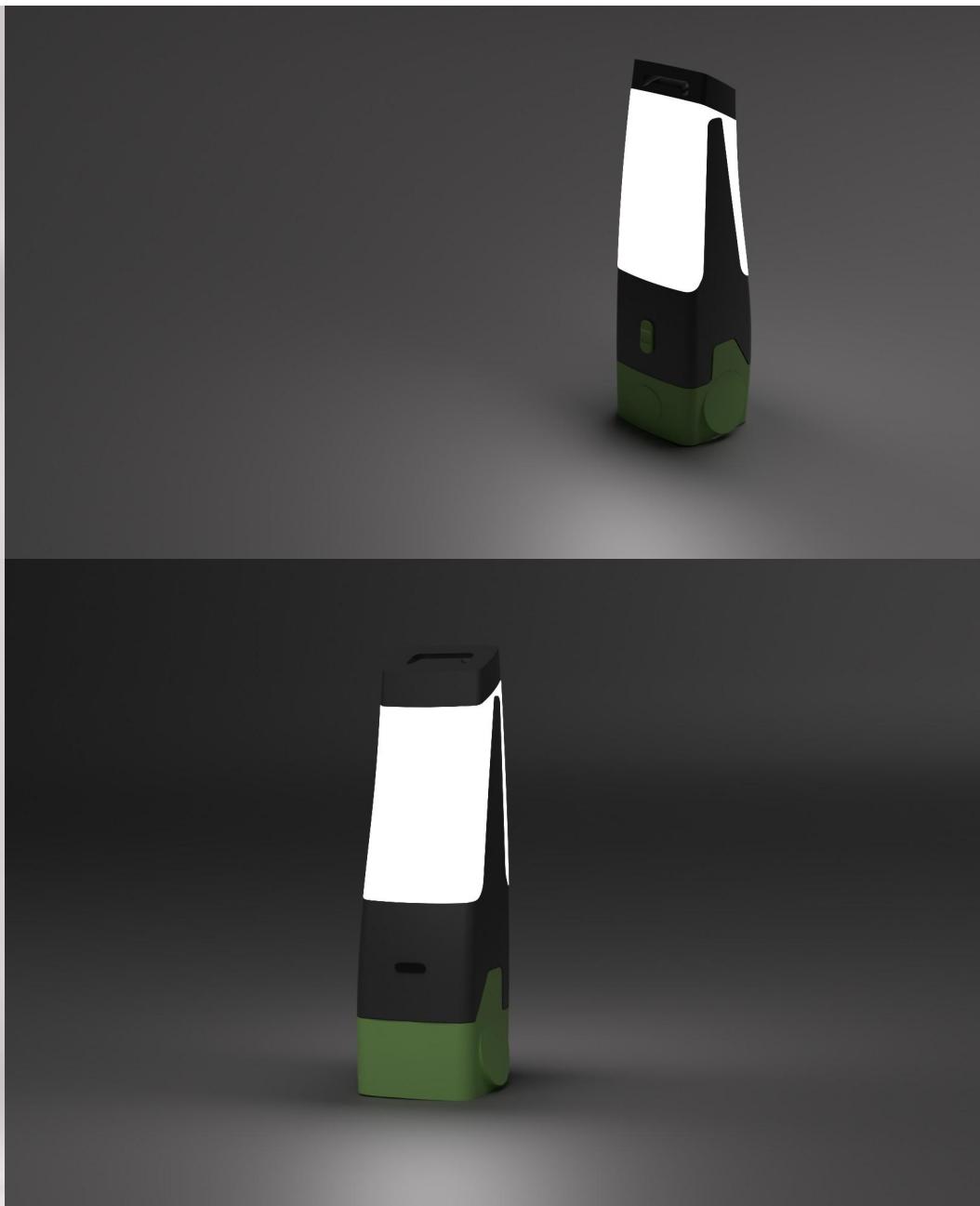
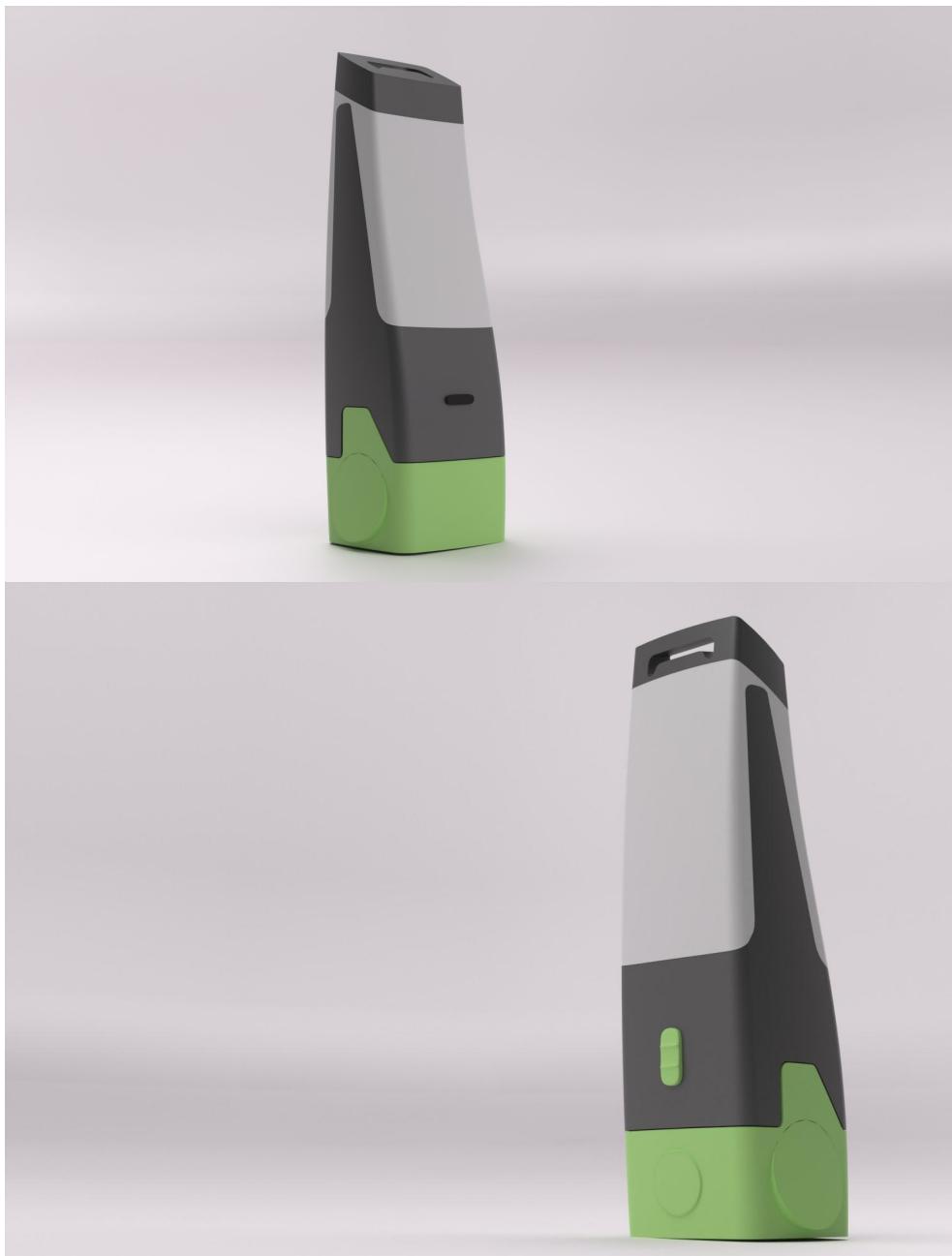
Final Product



Product renders



Product renders



Product Models



Product Models



Product Models



References

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Thank you