

ADVANCED CAD & CAM

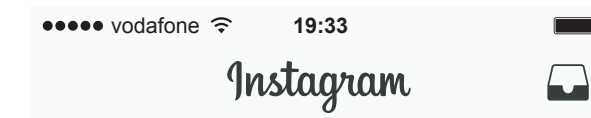
BIKE LIGHT PROJECT

Ignacio Ruiz Alapont





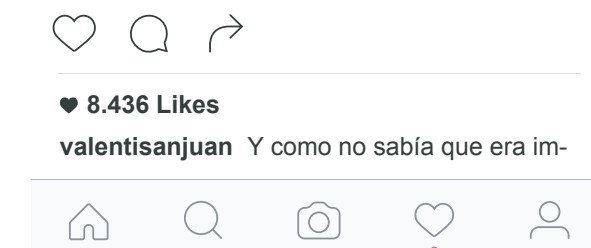
- "Don't use the weekend as an excuse to give up on your goal".
- "It's Friday, time to go make stories for Monday".



TRY TO INCORPORATE THE HOLES



CÁMARAS DEPORTE



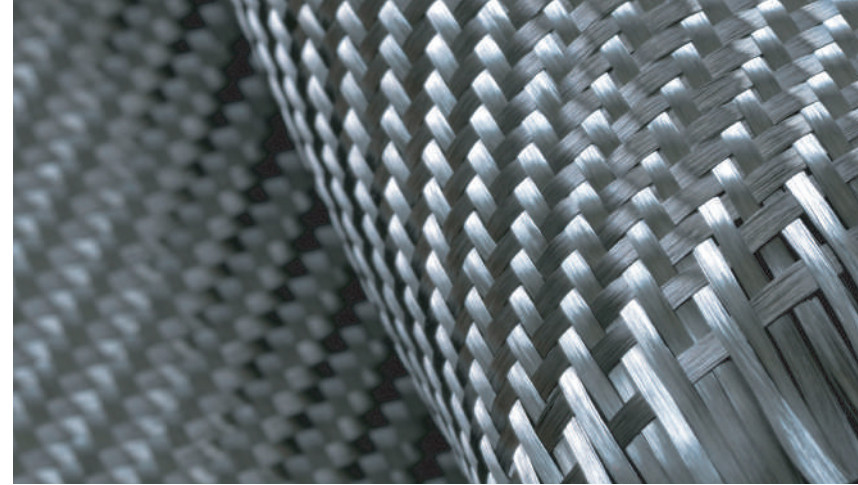
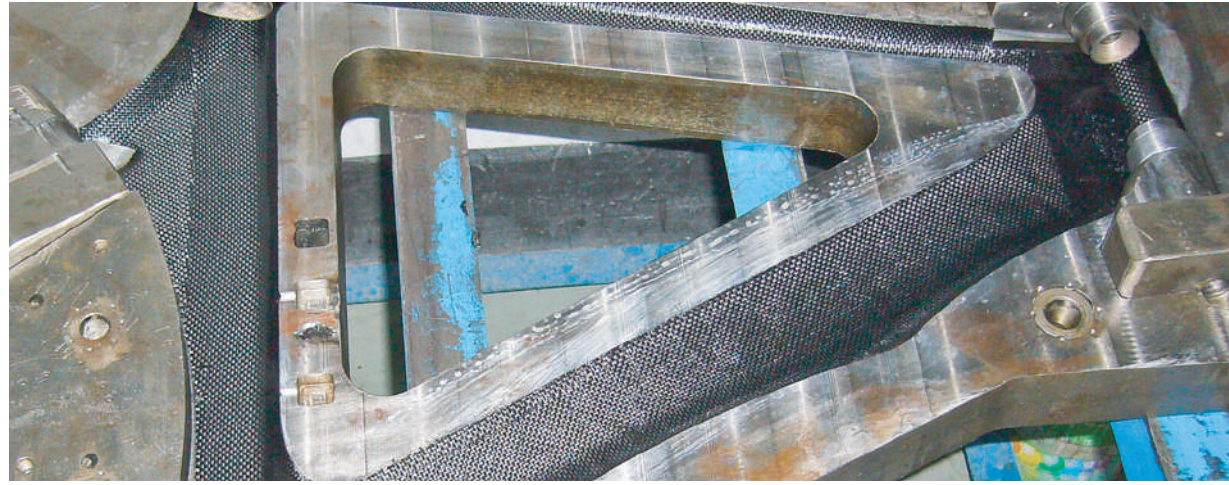
- ADD SOME MORE PRODUCTS HE USES

CAMELBAK®



MOODBOARD

CARBON FIBER



- PERFORMANCE
- HIGH-END MATERIALS
- CARBON FIBER

- EXPENSIVE MANUFACTURING
- HIGH END FABRICS

SWEAT FABRIC



WATERPROOF MATERIAL



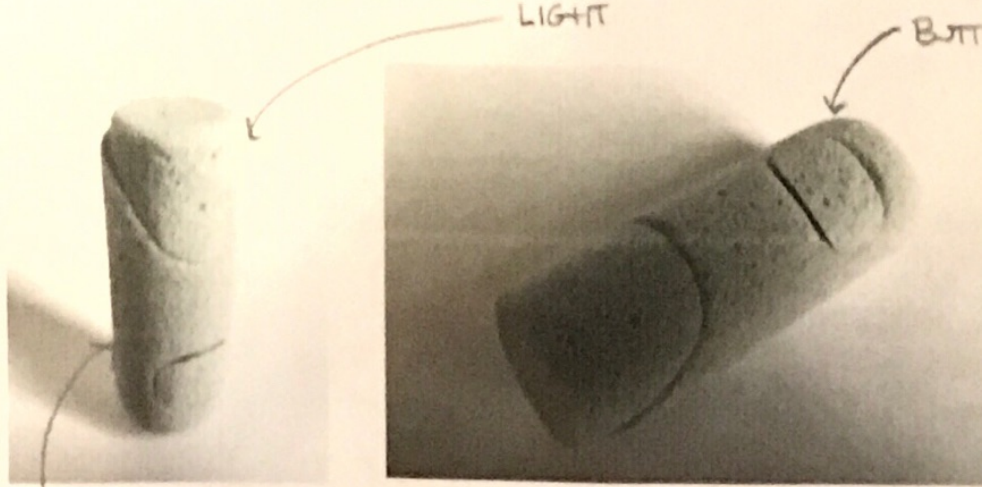
RUBBER



INJECTION MOLDED PLASTIC

MOODBOARD





BUTTON/MAGNET /GRIP TO THE BIKE

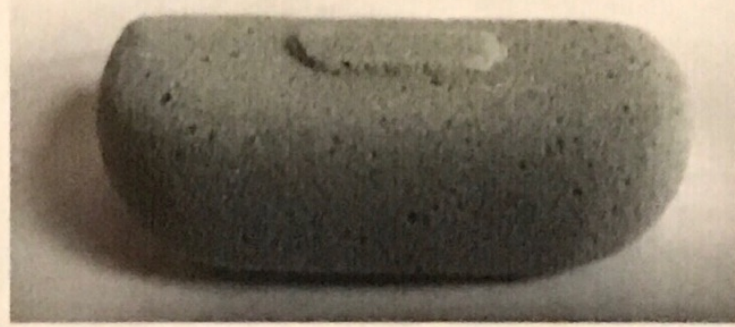
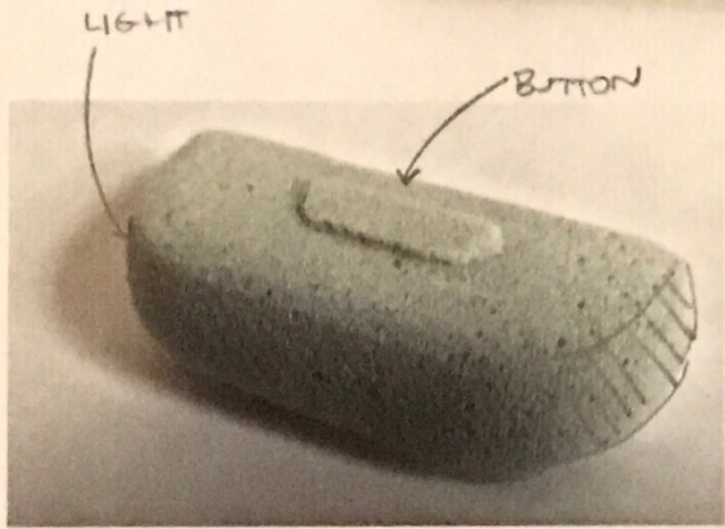
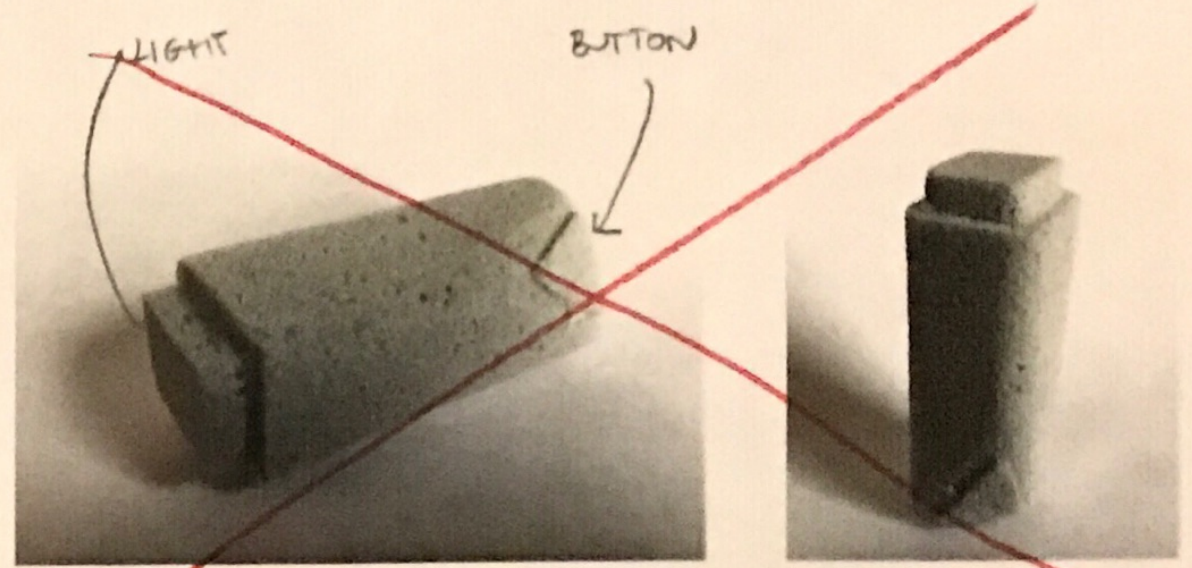
HELMET SILHOUETTE

In this case I wanted to create a light that reminds people the shape of a helmet (road bike)

- SAME SHAPES AS MOOPBOARD PRODUCTS

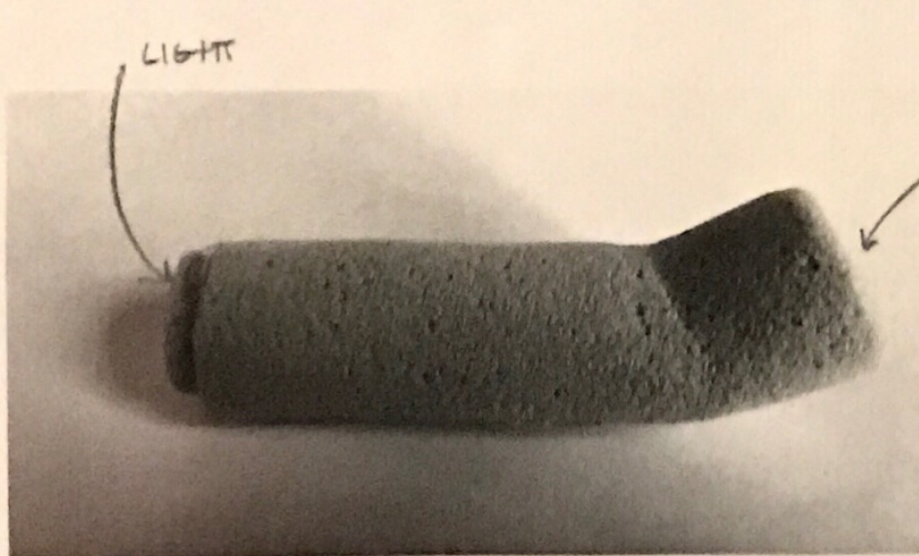
- USE THE VENT HOLES OF THE HELMET AS PART OF THE DESIGN

- HELMET
- BIKE PUMP
- SUNGLASSES
- BIKE TOOLKIT
- BIKE SHOES



SPREAD LIGHT

I looked into a light that provided a more wider area of light

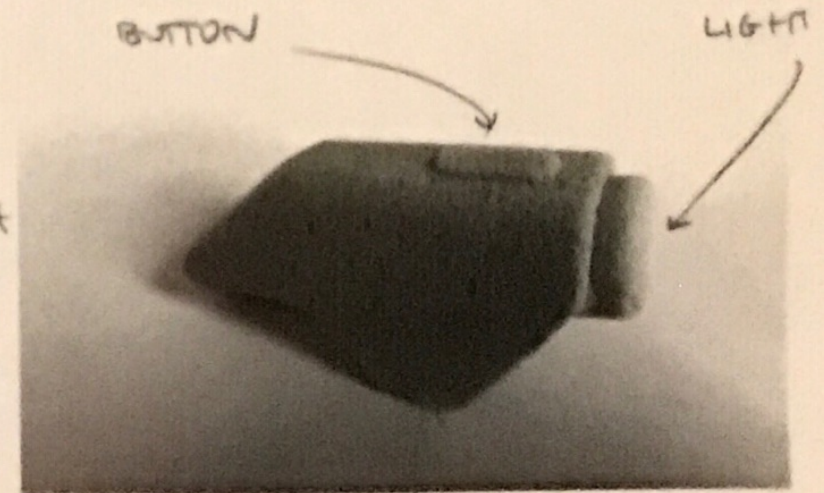


Thinking about pointing the light interface to the user

TELESCOPE

ROAD BIKE HELMET CHRONO

For this one I wanted it to look like a chrono road bike helmet so it is aimed for road bikers that

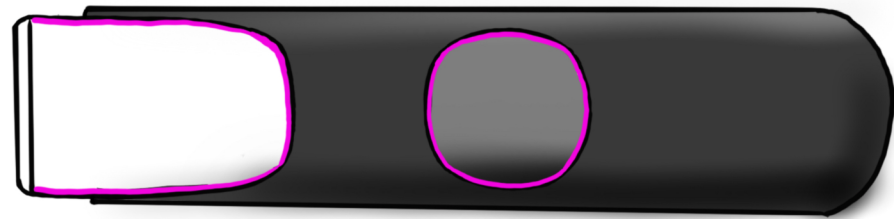
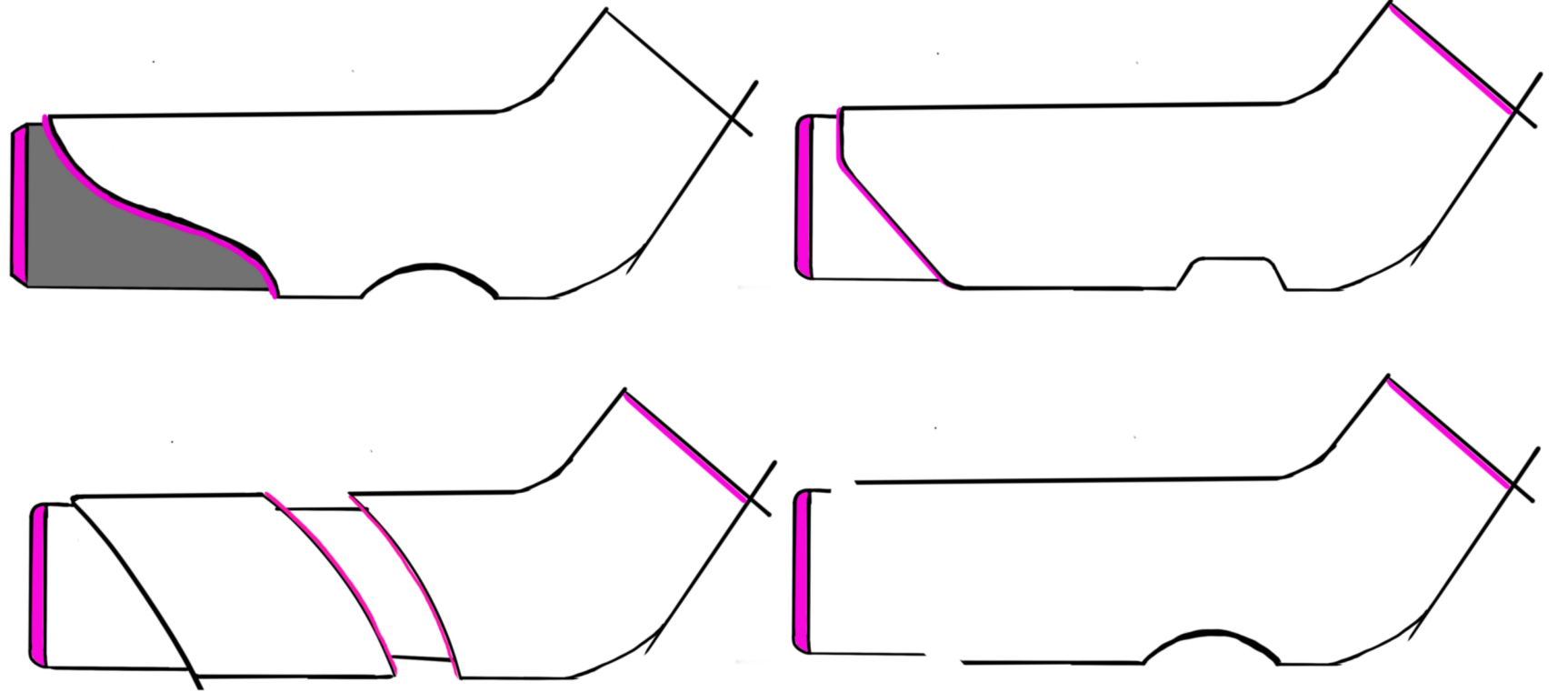
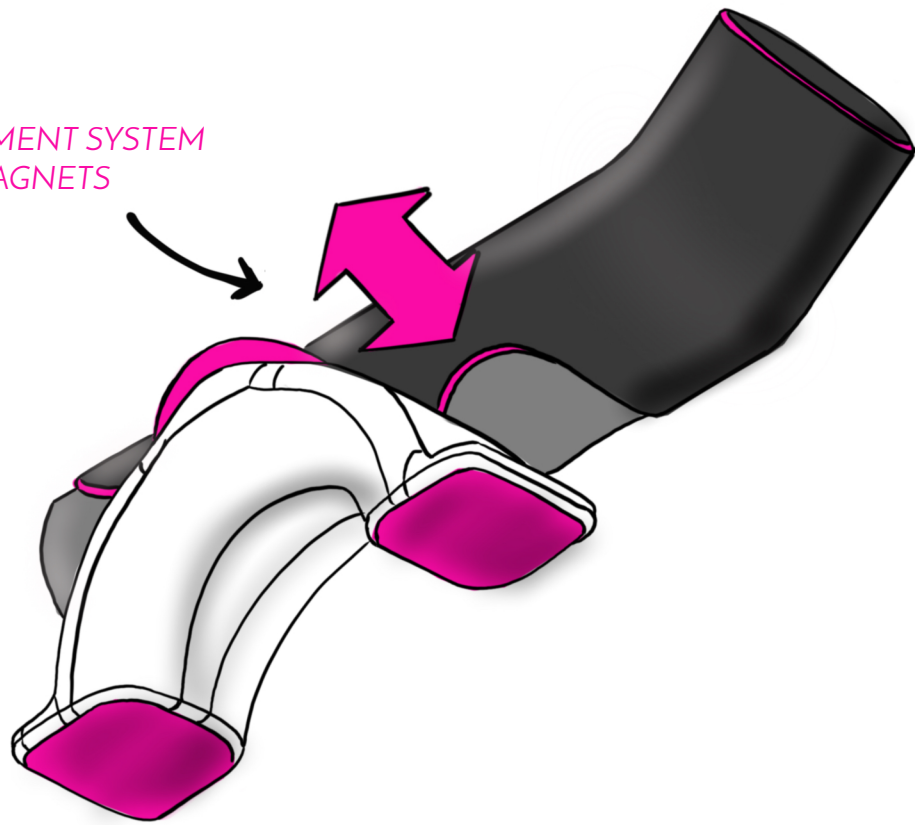


PLASTIC CORE



SKETCHES FOR MATERIALS

ATTACHMENT SYSTEM WITH MAGNETS



BOTTOM VIEW

ANODIZED ROUGH GREY ALUMINUM

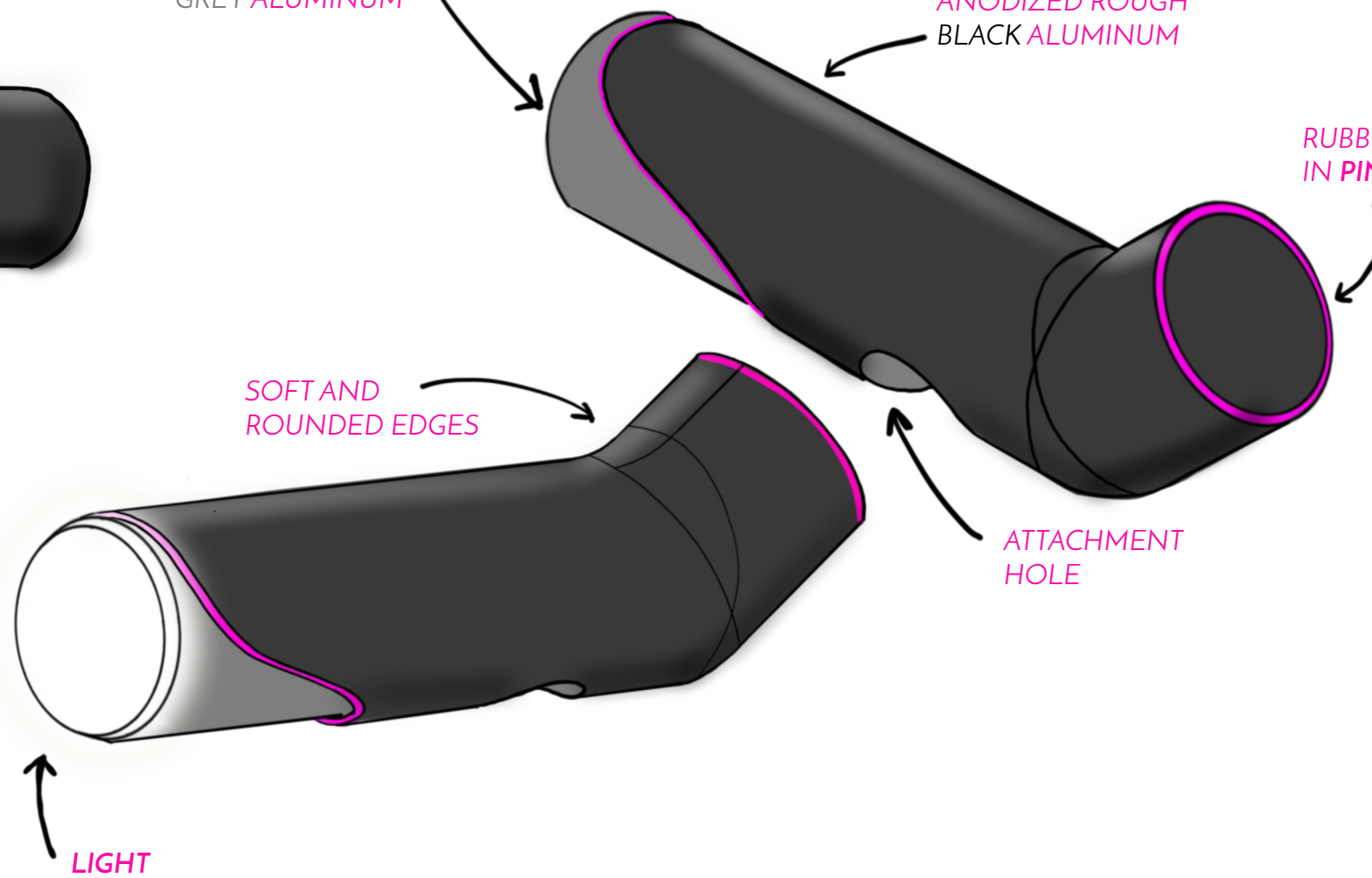
ANODIZED ROUGH BLACK ALUMINUM

RUBBER DETAILS IN PINK

SOFT AND ROUNDED EDGES

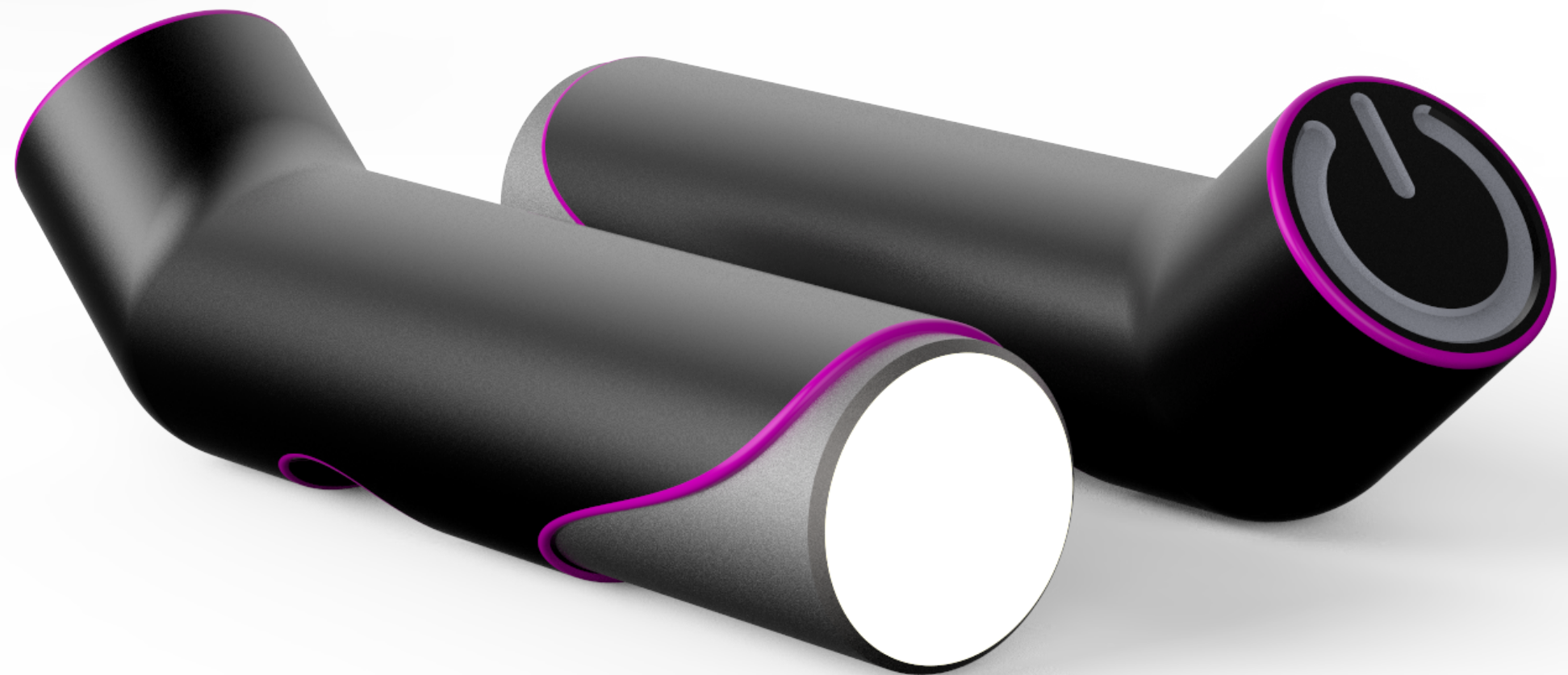
ATTACHMENT HOLE

LIGHT



Handwritten signature

RENDERS

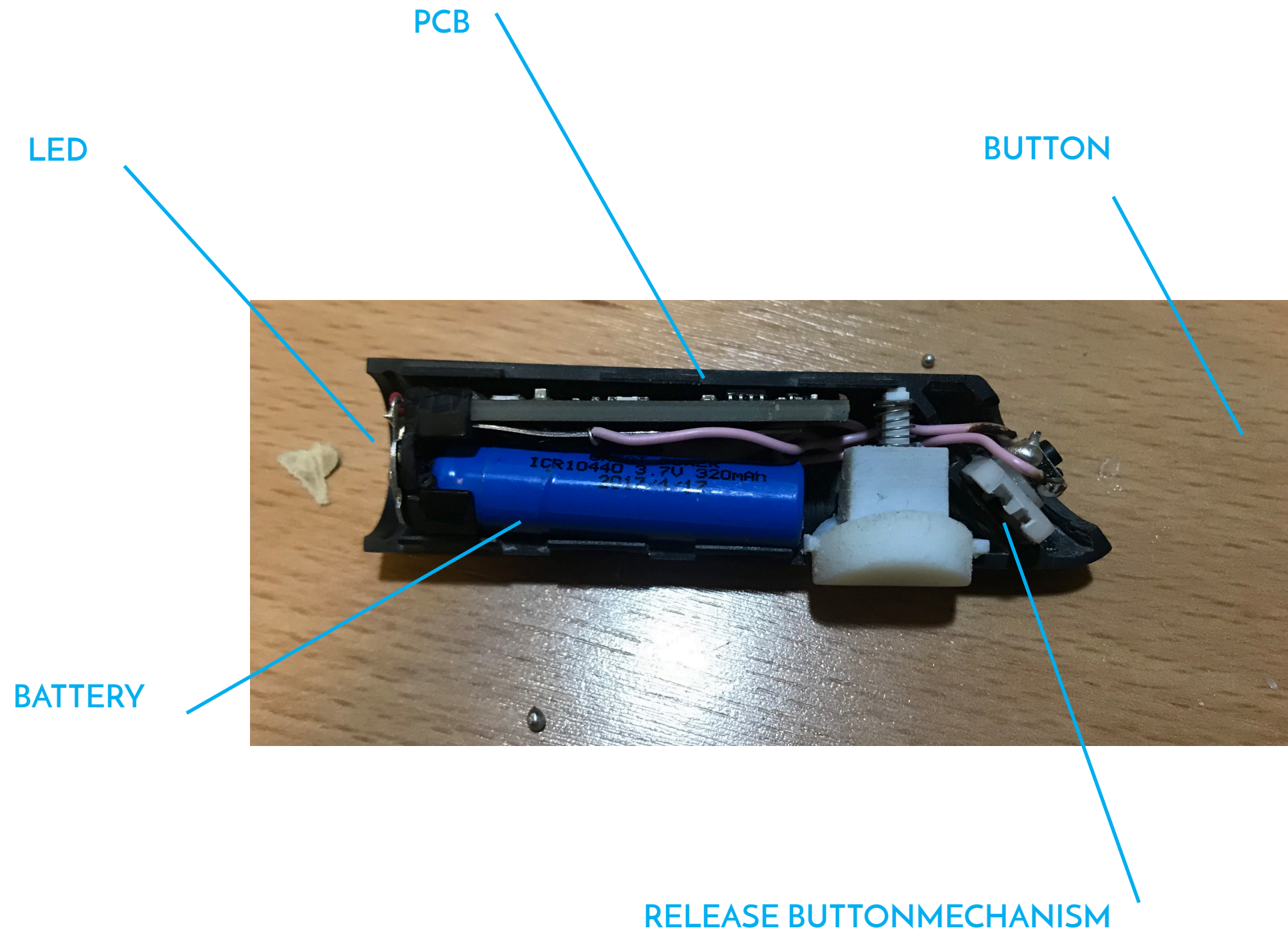


FINAL MODEL ASSEMBLY



After having to print my bike light 3 times because it broke the first two times, I was able to put it together. The only thing I regret not doing is the fact that I should have left a little more room between the torch and the case because once I painted it, the torch was making a tight fit in the case and I couldn't get it out. But still it works perfectly.



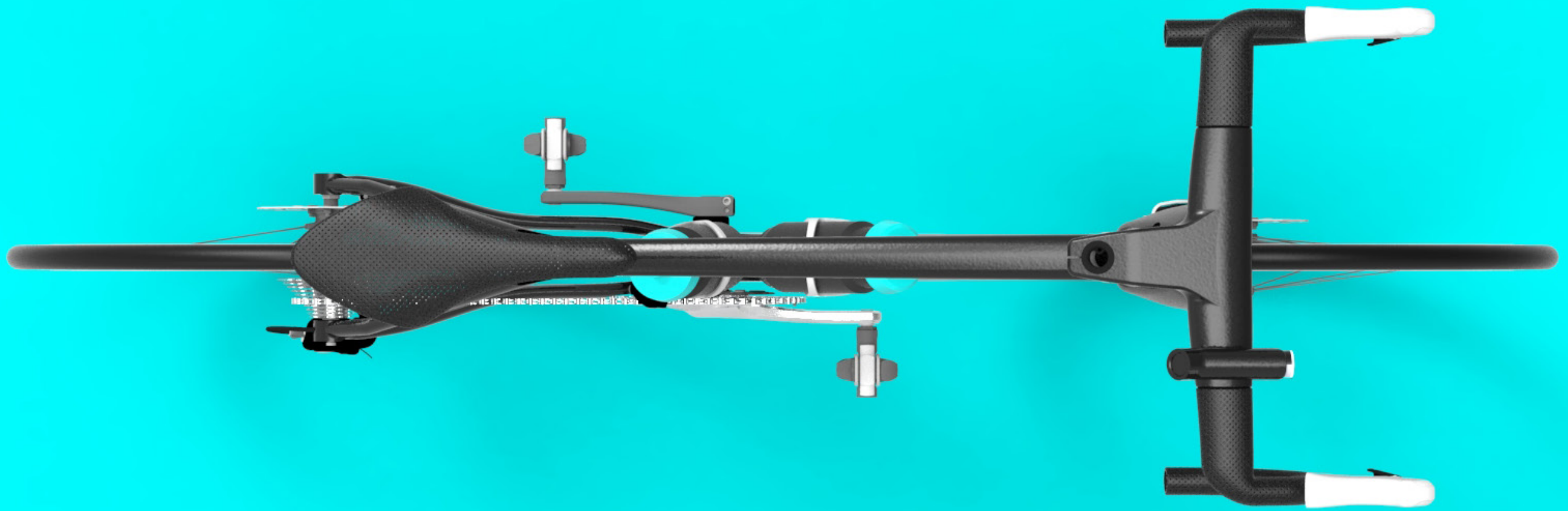


As I had thought everything whilst doing the CAD, I did not have any issues when putting my bike light together. As you can see in this image it is a very compact light. Everything fits exactly where it was supposed to be and it works perfectly.

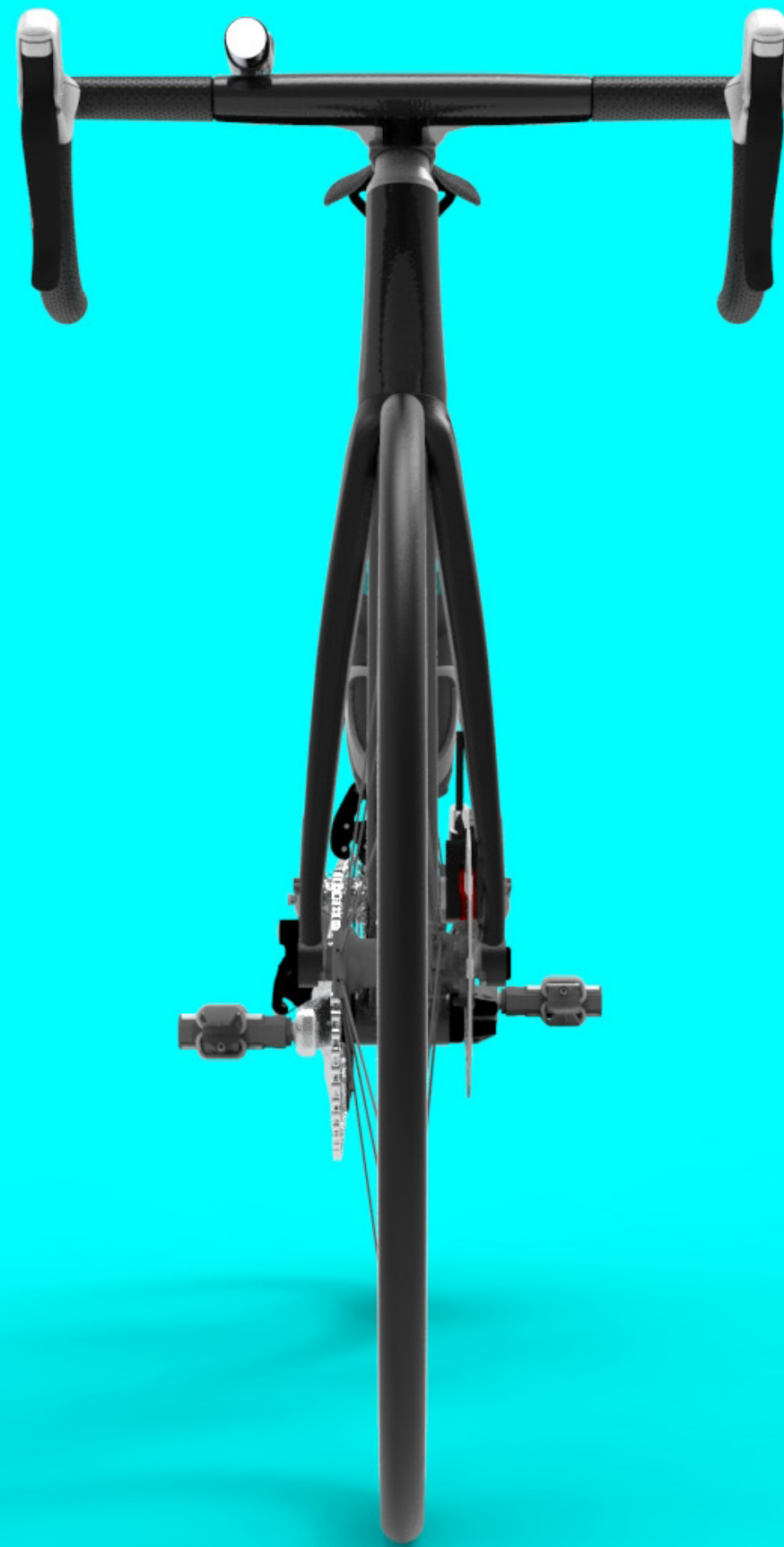
BIKE LIGHT IN CONTEXT



BIKE LIGHT IN CONTEXT



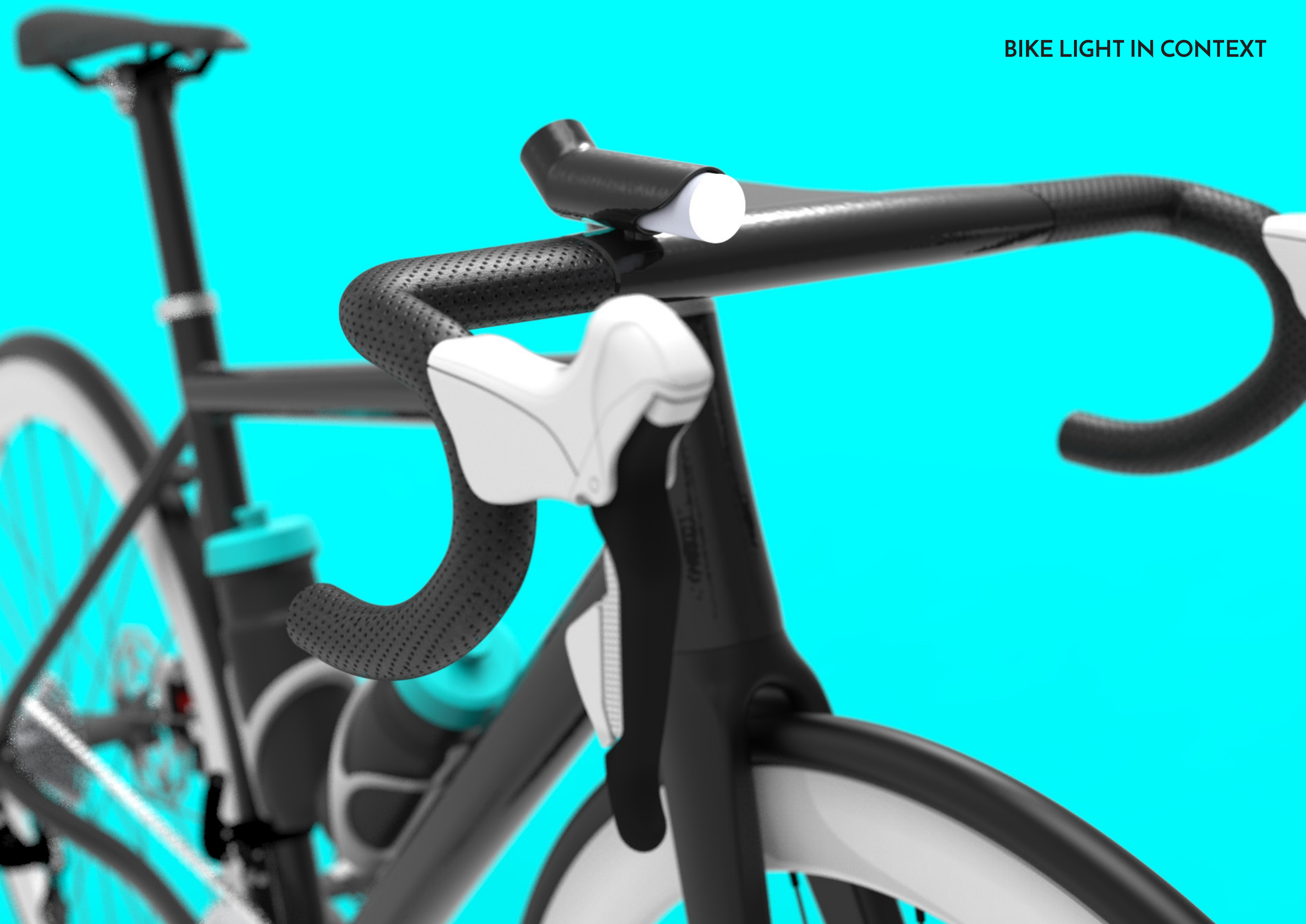
BIKE LIGHT IN CONTEXT

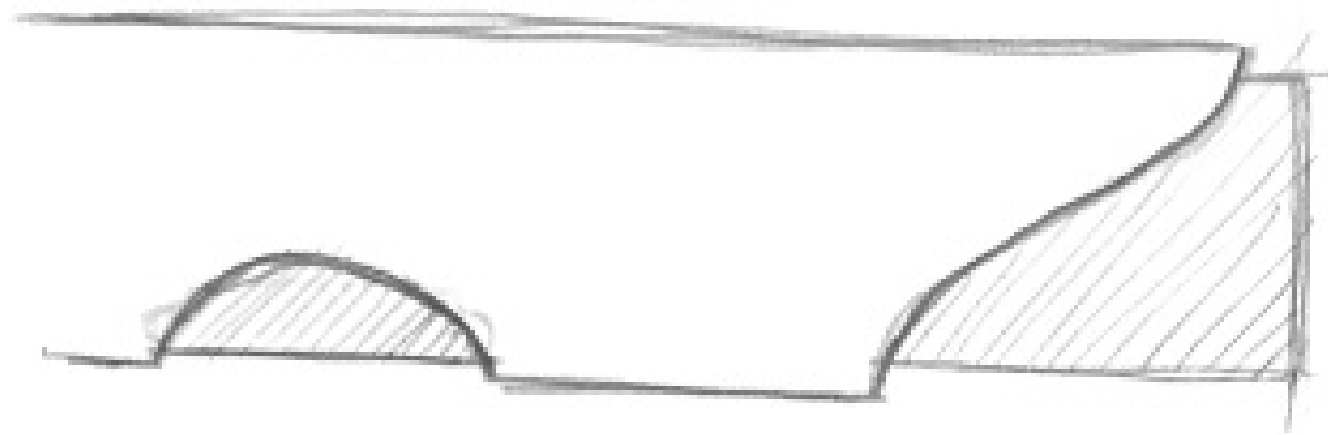


BIKE LIGHT IN CONTEXT

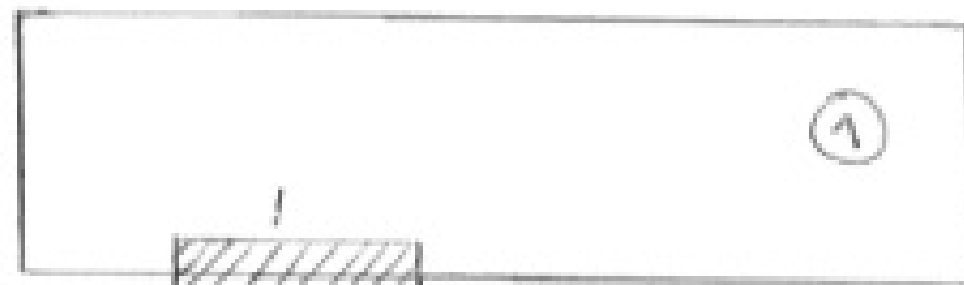
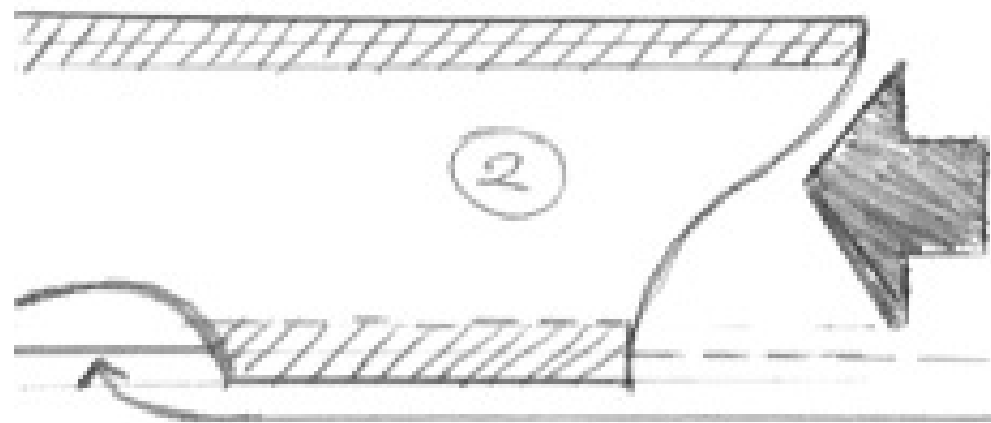
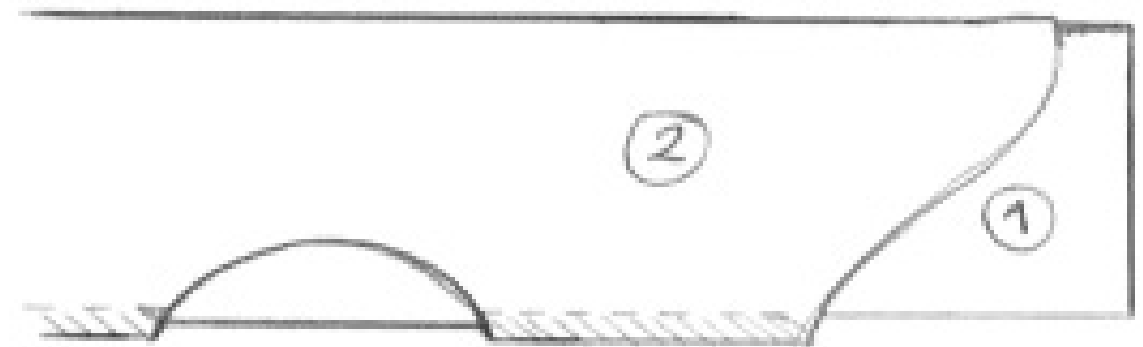
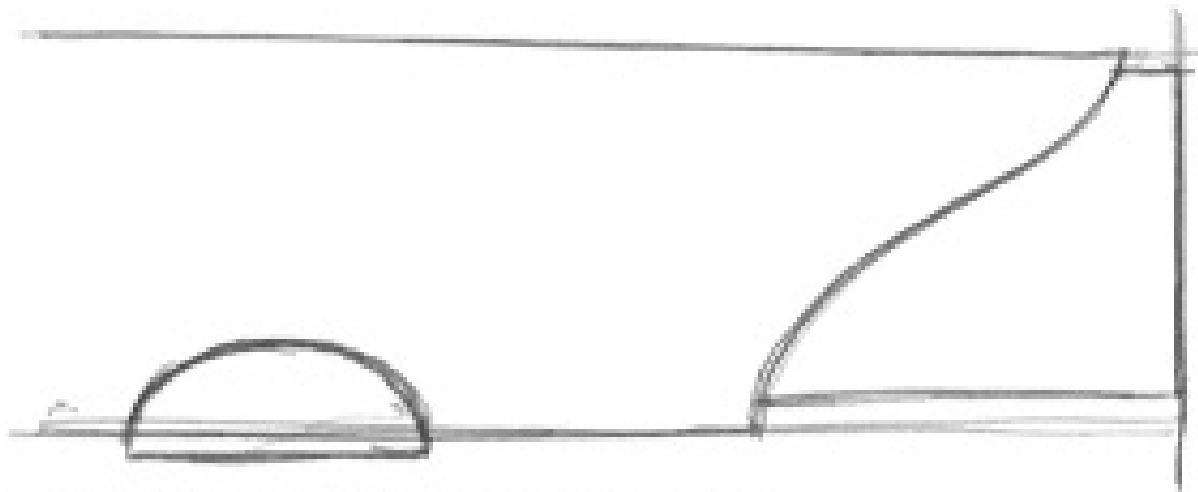


BIKE LIGHT IN CONTEXT





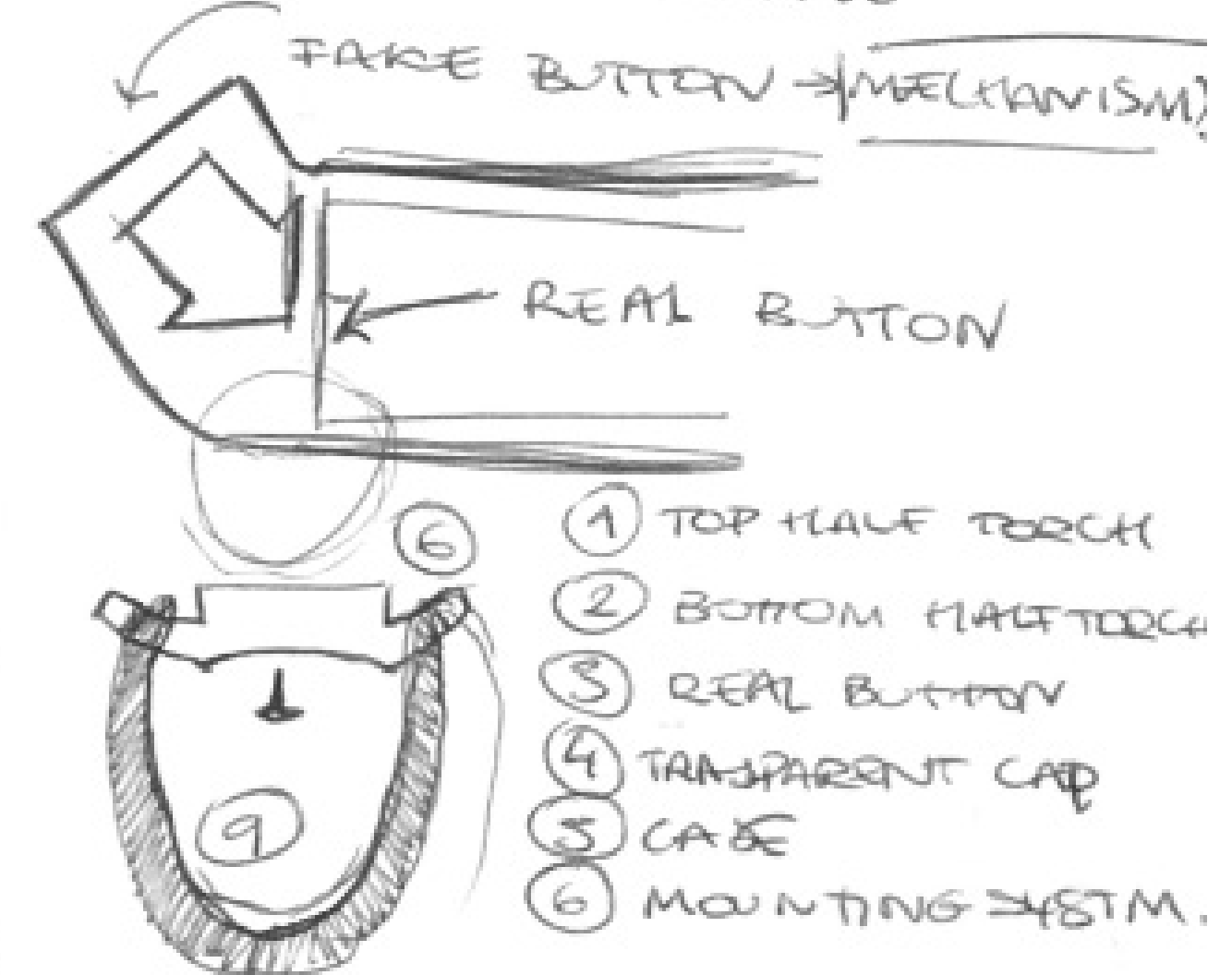
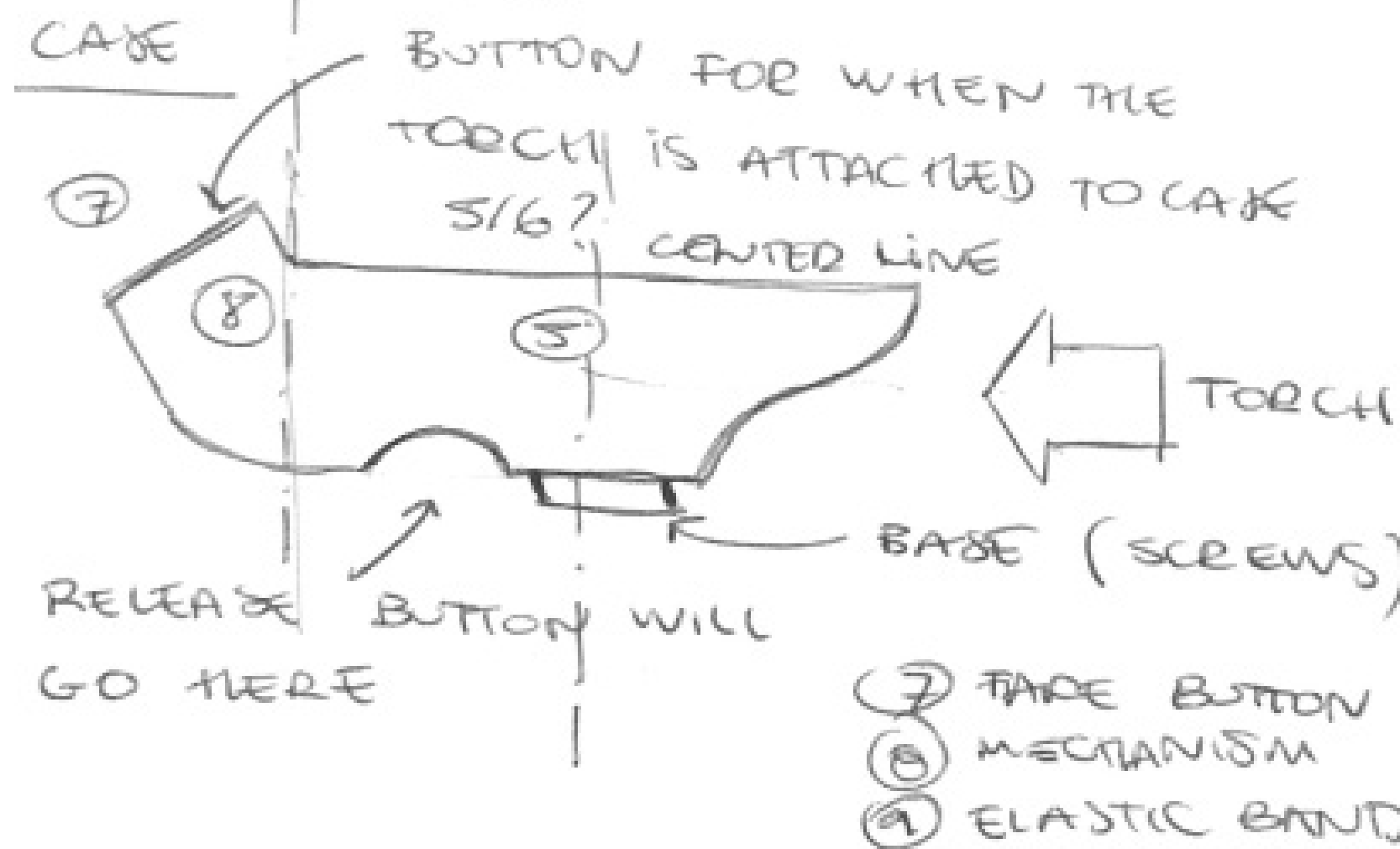
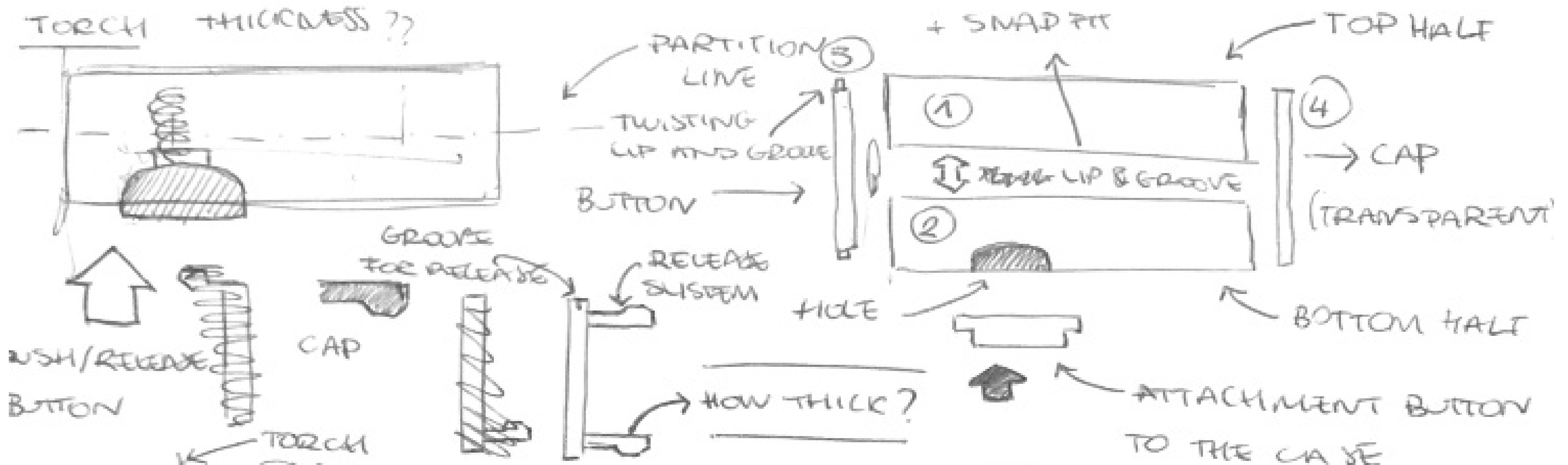
- ① TORCH
- ② GATE



← LIGHT

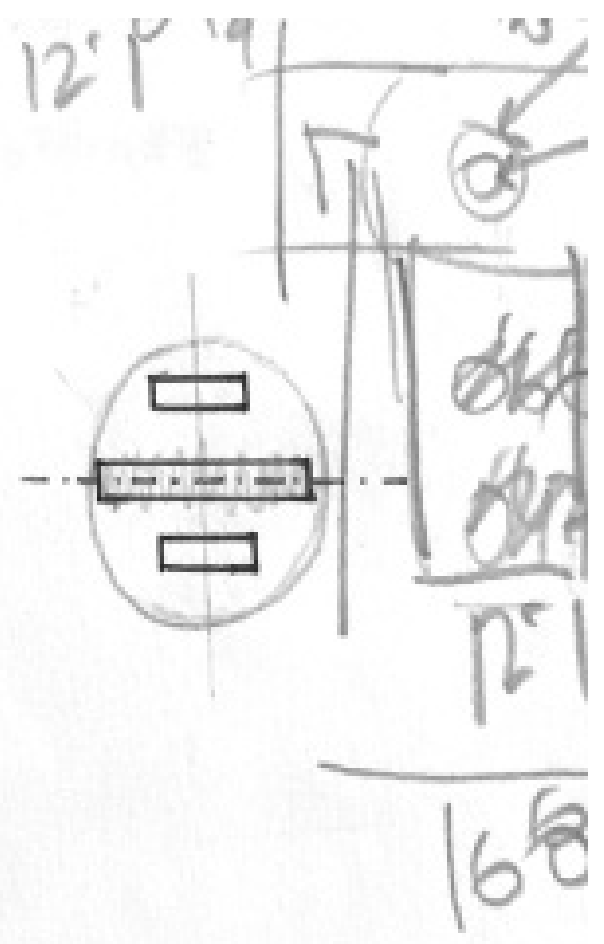
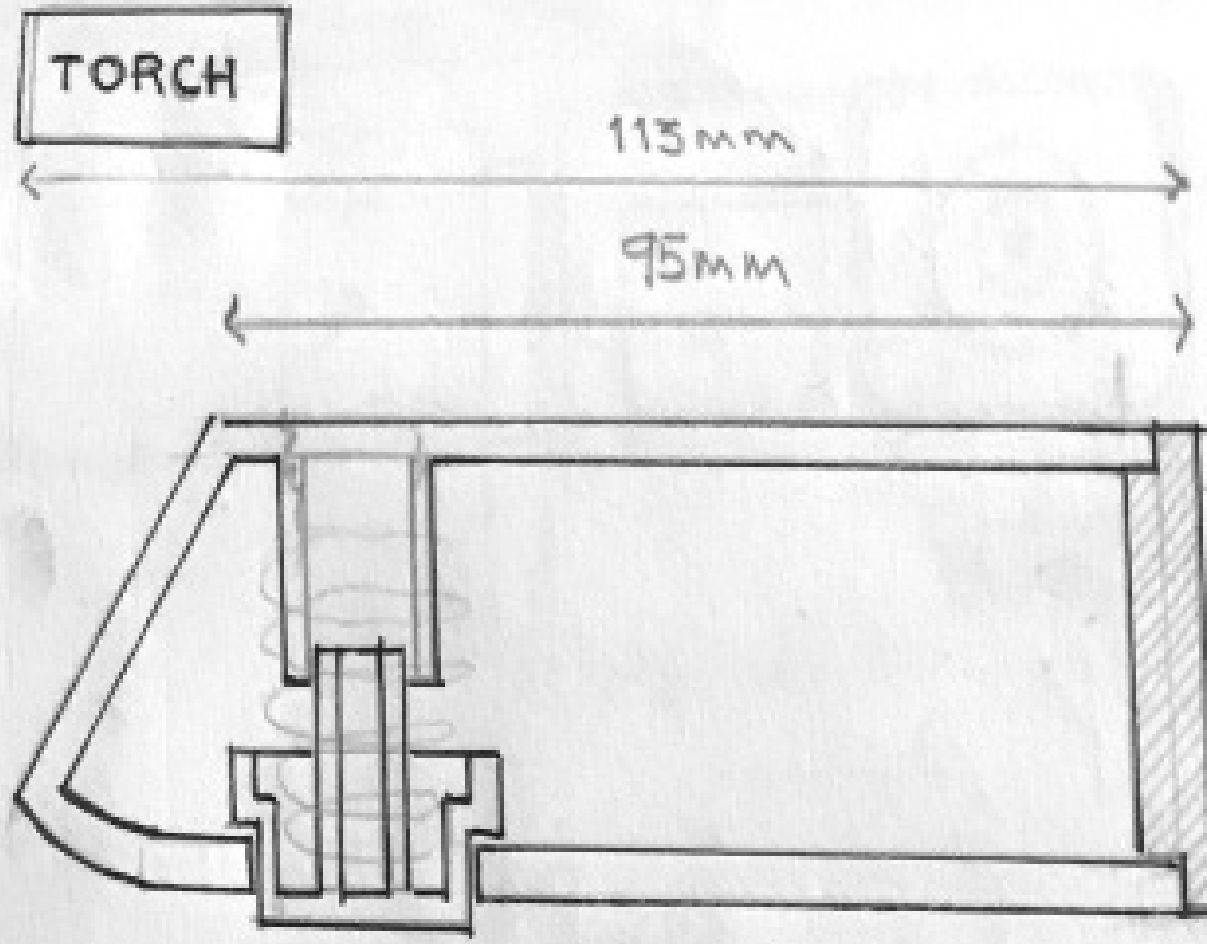
↑ MOUNT THICKNESS

← BUMP FOR ATTACH

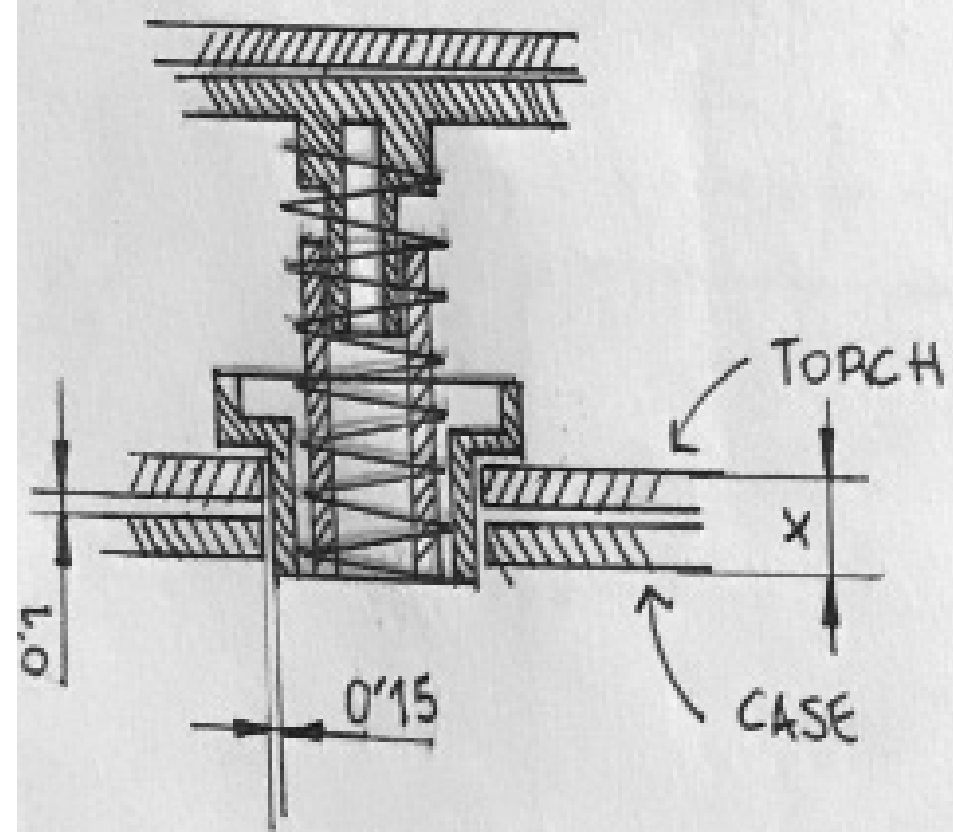


- ⑦ FAKE BUTTON
- ⑧ MECHANISM
- ⑨ ELASTIC BAND

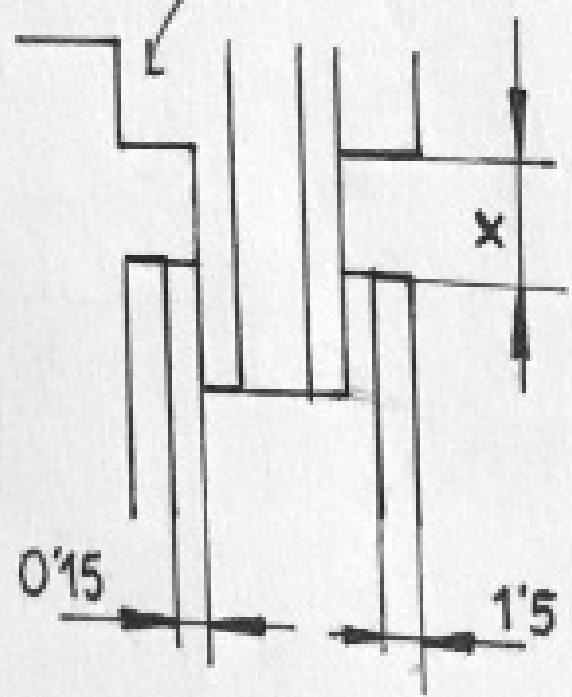
- ① TOP HALF TORCH
- ② BOTTOM HALF TORCH
- ③ REAL BUTTON
- ④ TRANSPARENT CAP
- ⑤ CASE
- ⑥ MOUNTING SYSTEM



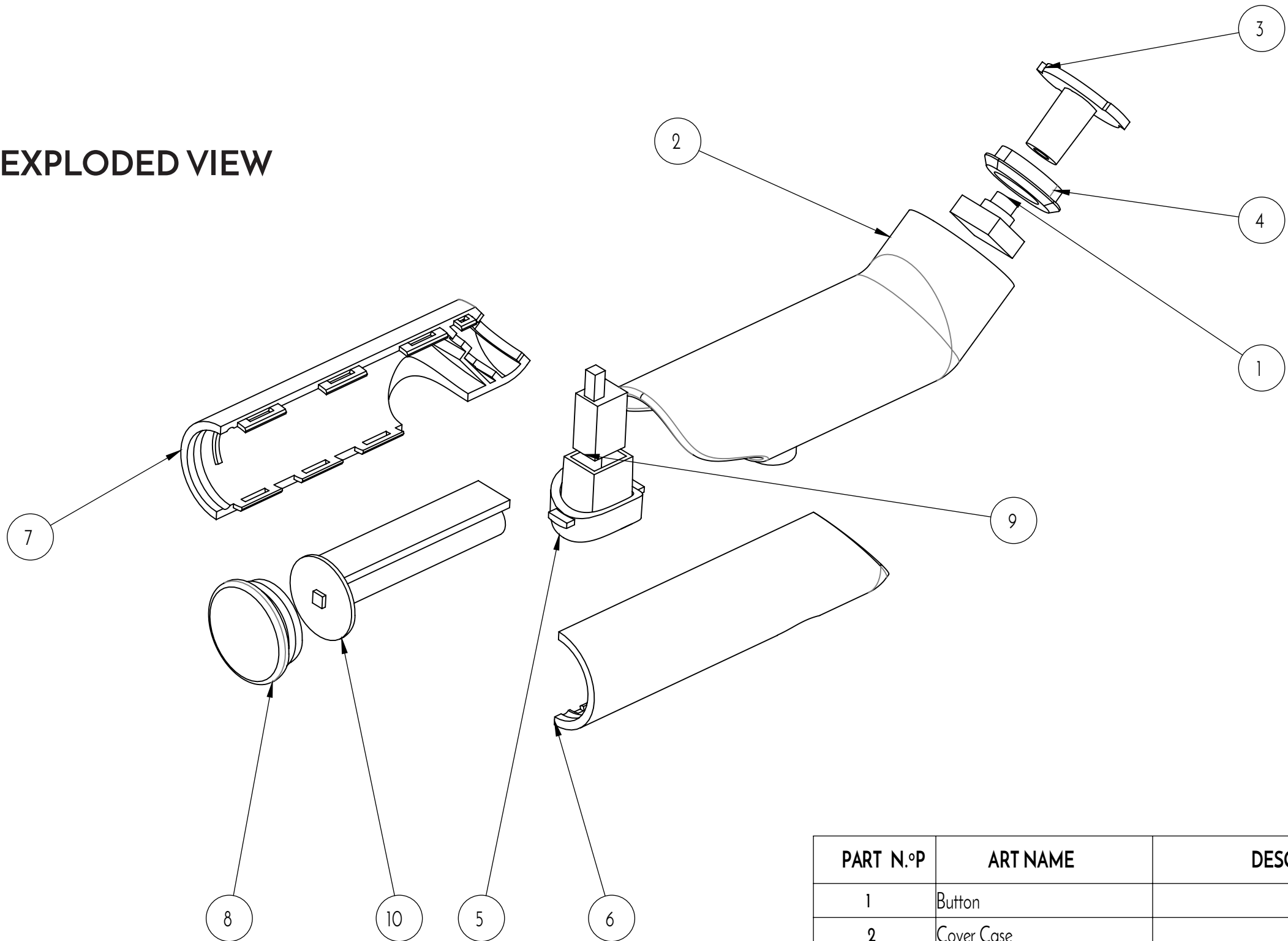
ATTACHMENT TO CASE DETAIL



WALL TO SUPPORT SPRING

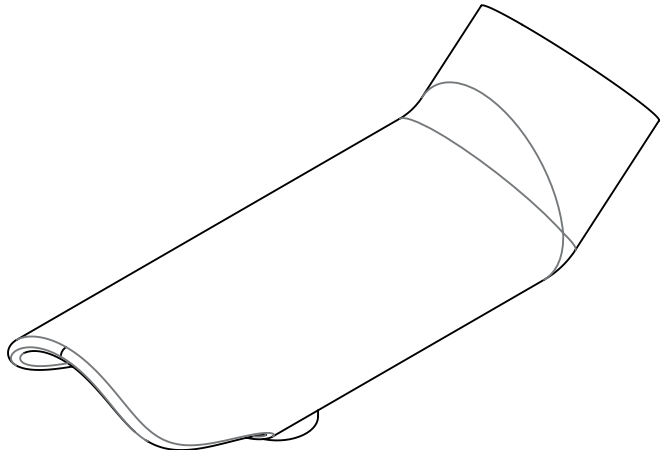
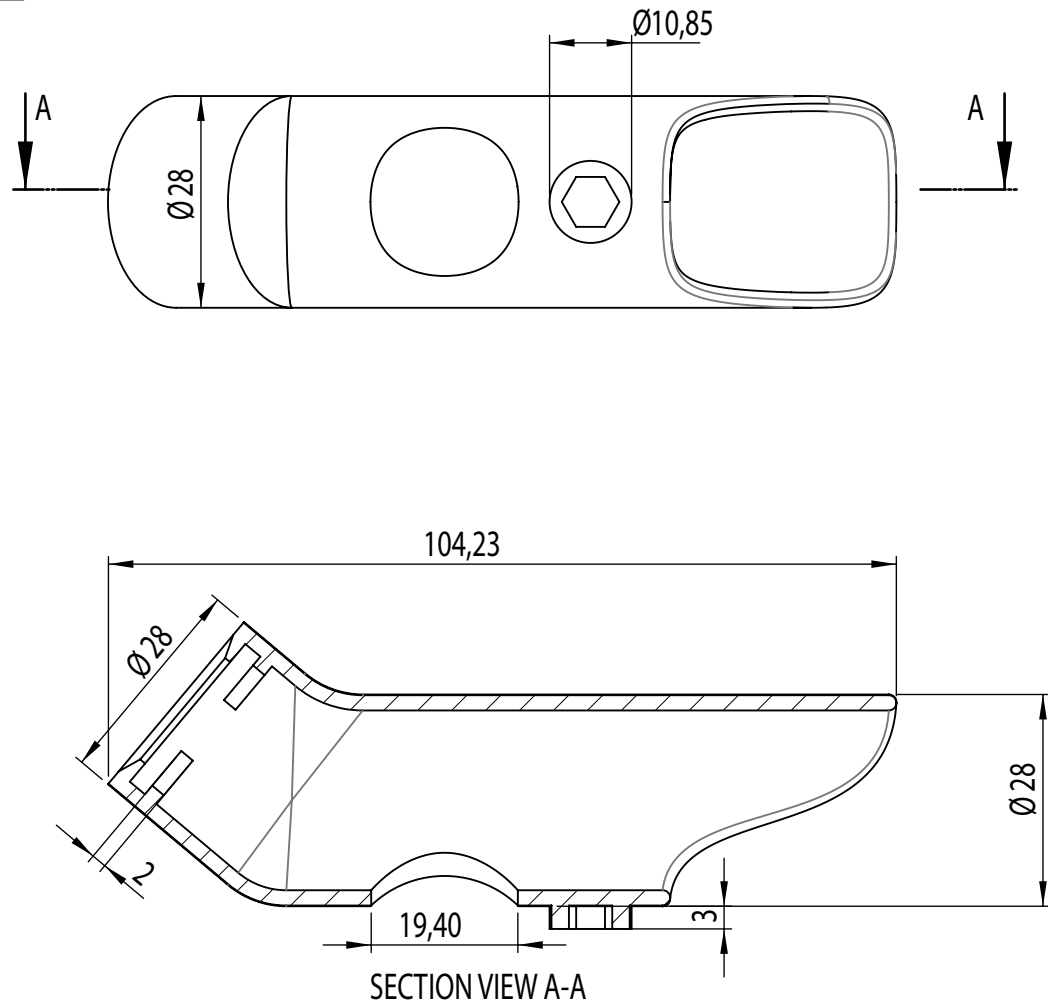


EXPLODED VIEW

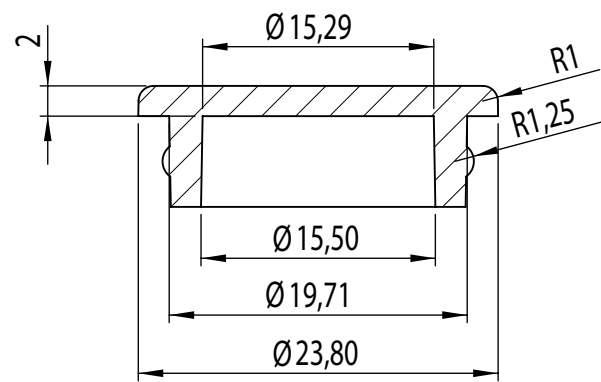
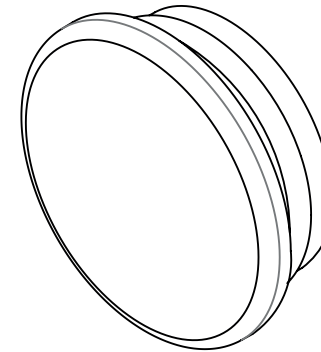
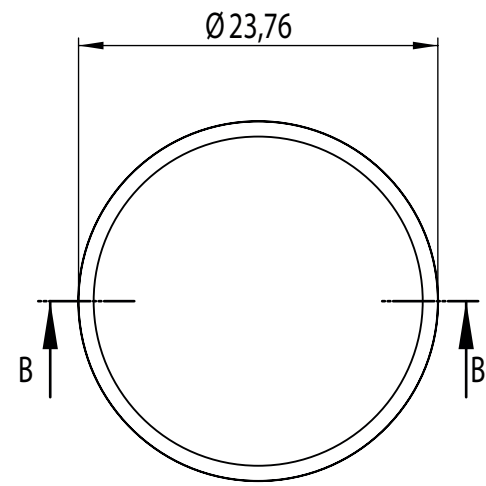


| PART N.ºP | ART NAME | DESCRIPTION | QUANTITY |
|-----------|------------------------|-------------|----------|
| 1 | Button | | 1 |
| 2 | Cover Case | | 1 |
| 3 | Cover Case Button | | 1 |
| 4 | Torch Button | | 1 |
| 5 | Release Case Mechanism | | 1 |
| 6 | Left Half Torch Part | | 1 |
| 7 | Right Half Torch Part | | 1 |
| 8 | Clear Plastic Part | | 1 |
| 9 | Spring Button | | 1 |
| 10 | LED + Batery + PCB | | 1 |

COVER CASE

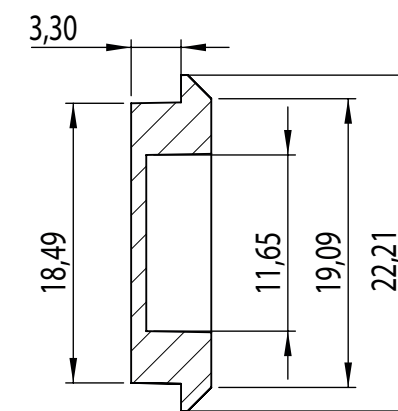
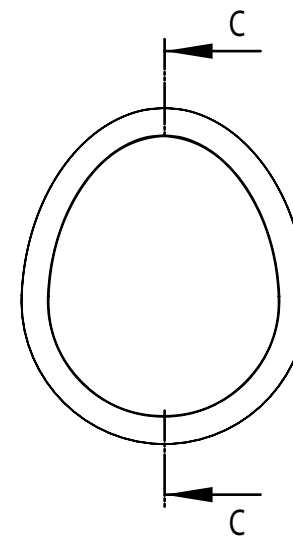


CLEAR PLASTIC PART

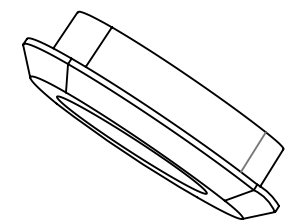


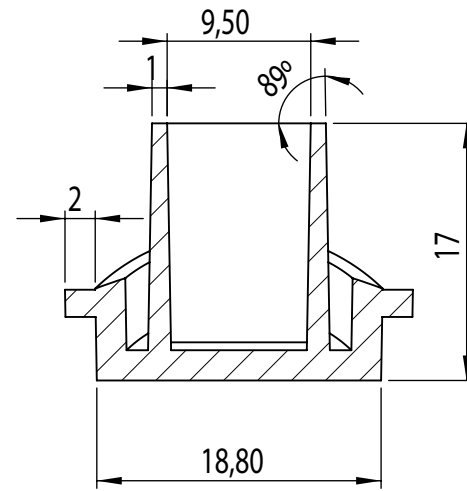
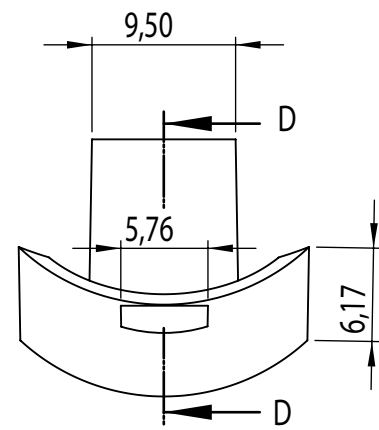
SECTION VIEW B-B
SCALE 2:1

TORCH BUTTON

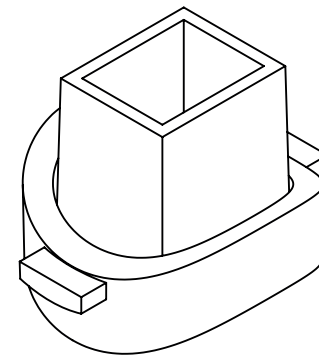


SECTION VIEW C-C



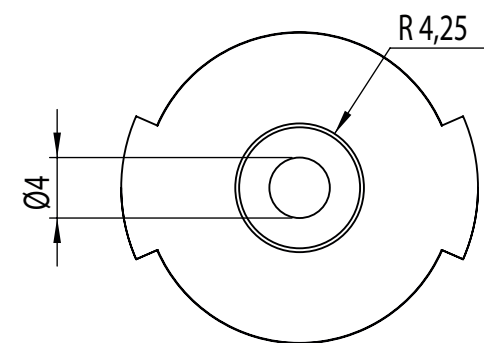
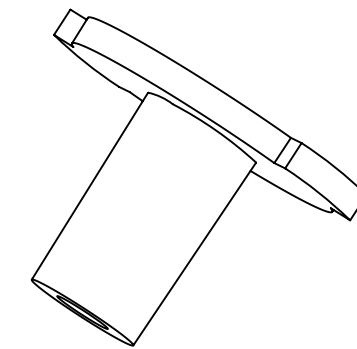
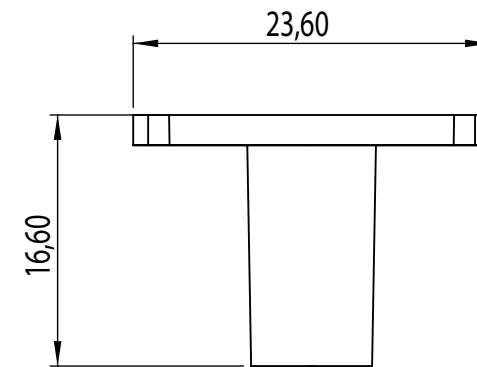


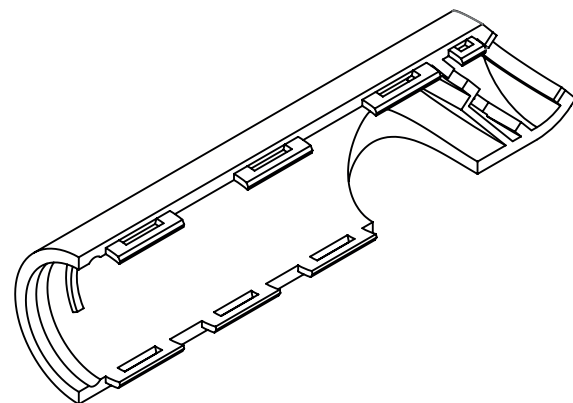
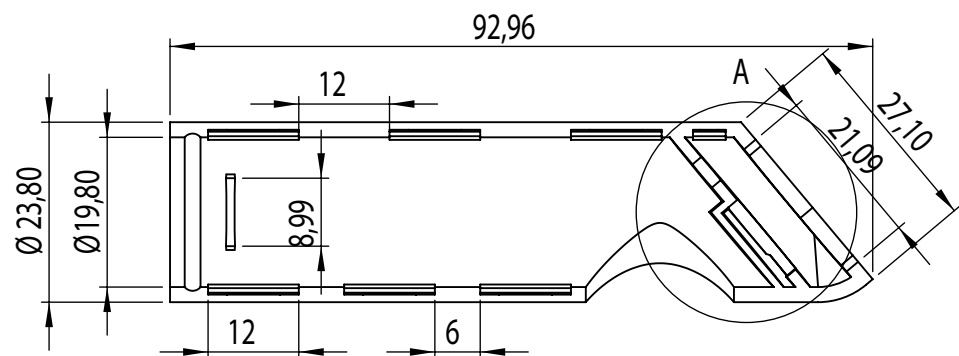
SECTION VIEW D-D



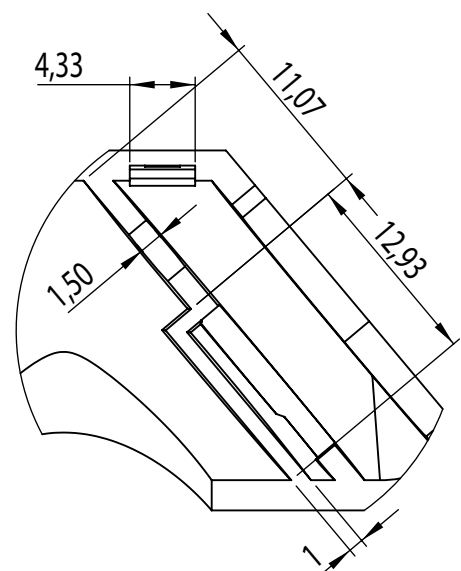
RELEASE CASE
MECHANISM

COVER CASE
BUTTON



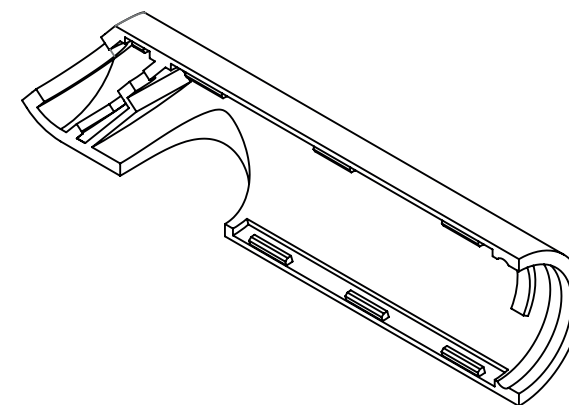
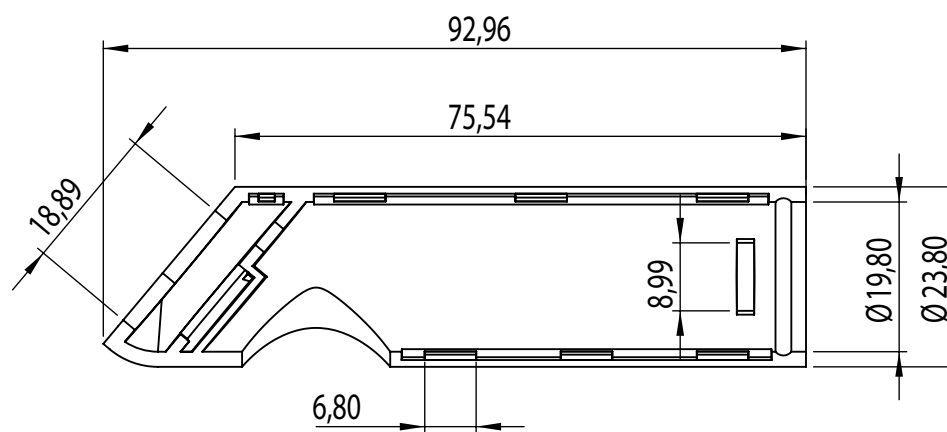


RIGHT HALF TORCH PART



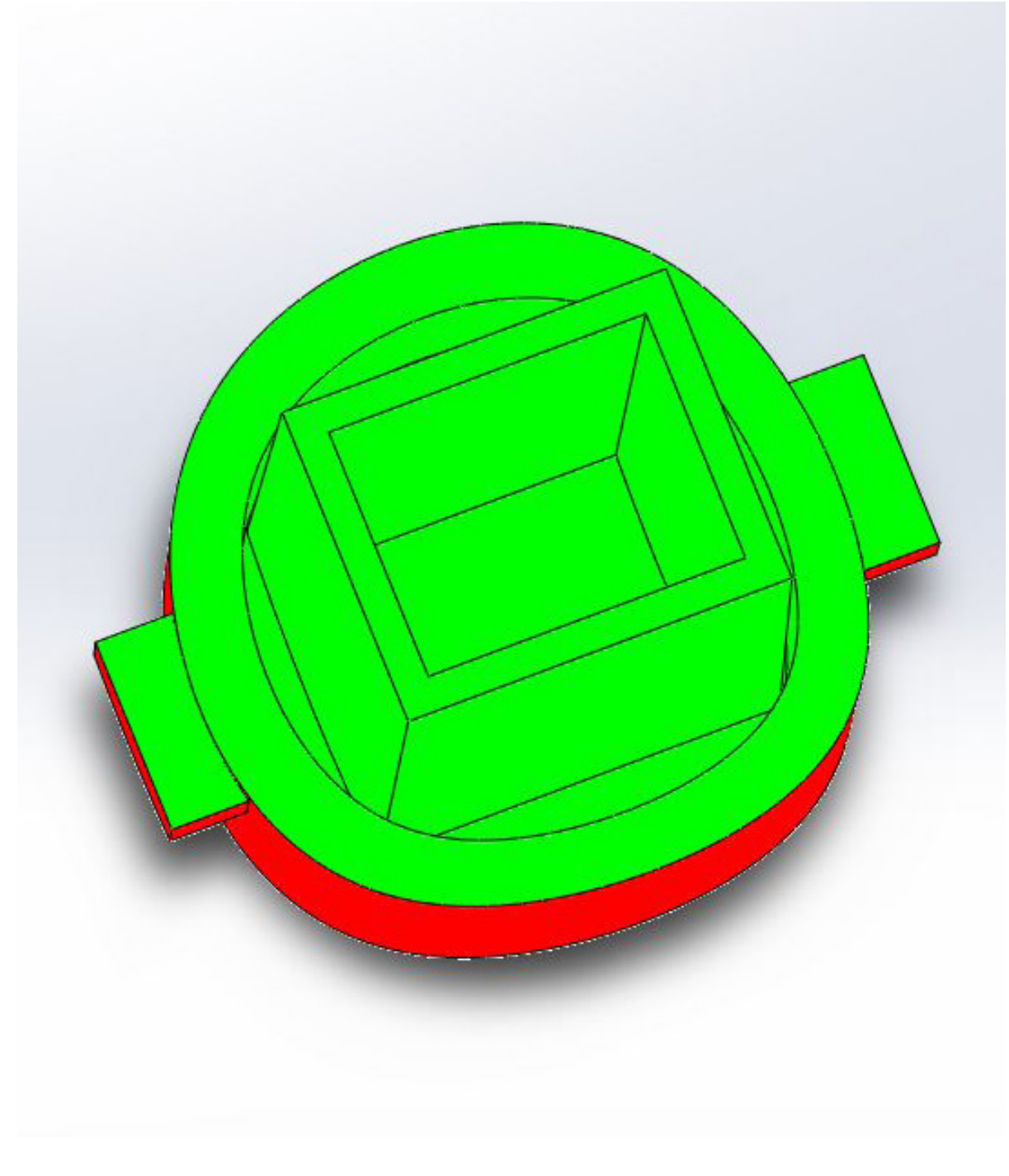
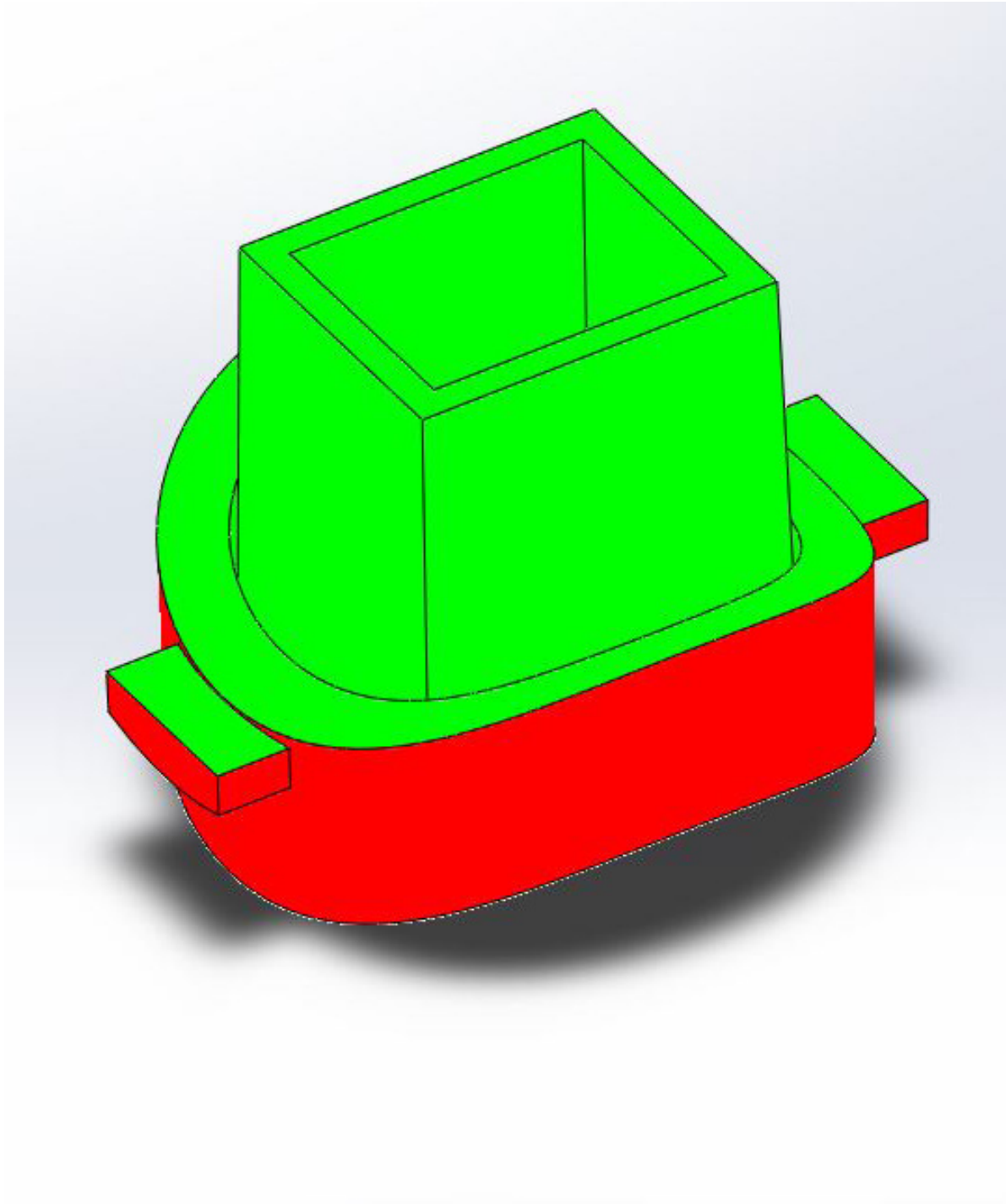
DETAIL A
SCALE 2:1

LEFT HALF TORCH PART

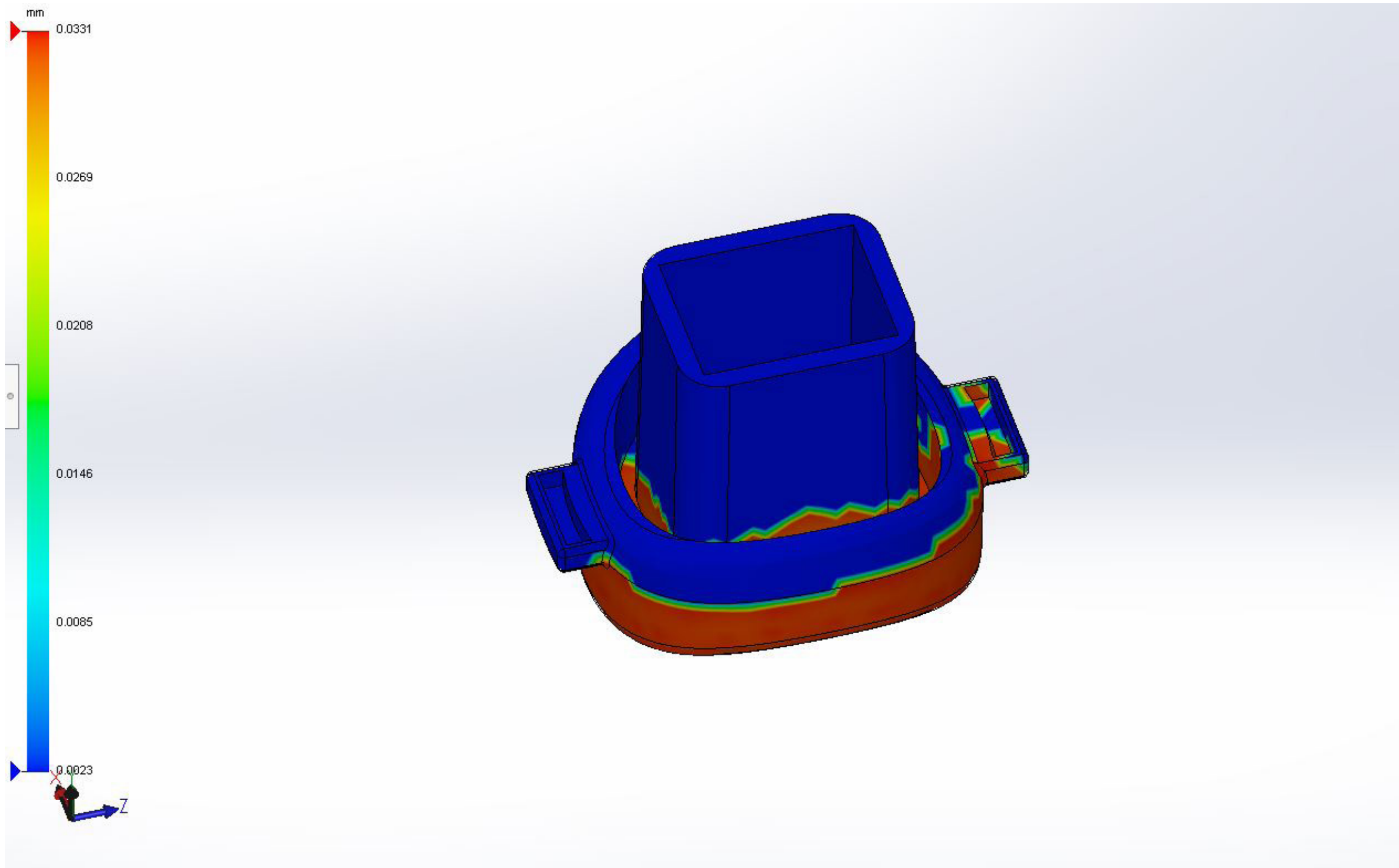


INJECTION MOULDING: DRAFT ANALYSIS

The piece that I am going to test is the release button. This is a very important part in my design and I will be making it with ABS plastic as I want it to be very resistant. As this is a very straight forward piece, I did not have any problems with it.

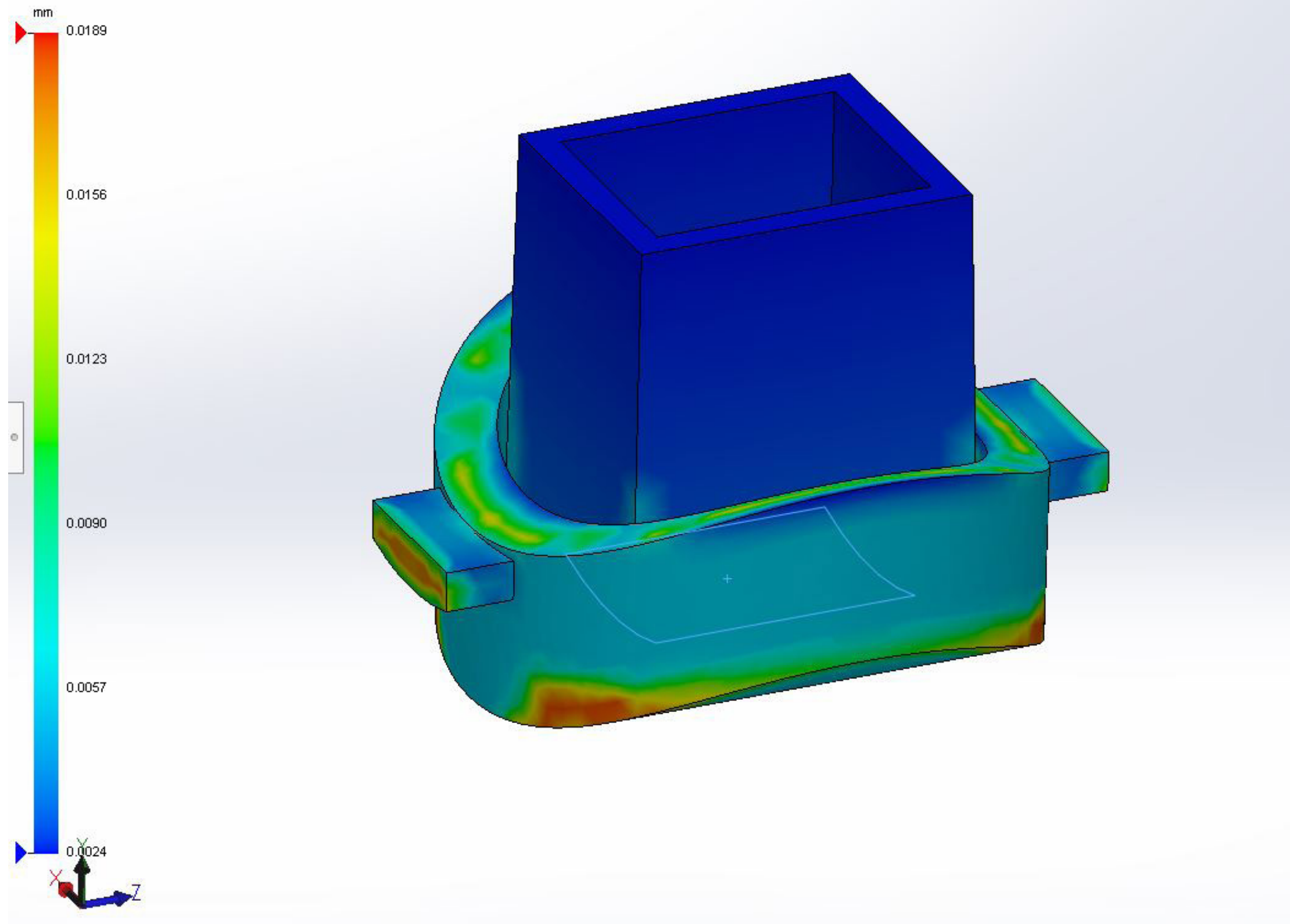


INJECTION MOULDING: SINK MARKS



After making the first test of the sink marks I realised that I had to improve my part in order to be ready for injection moulding.

INJECTION MOULDING: SINK MARKS



I did some research about injection moulding and I tried to improve my part by making it thinner in some areas, getting rid of other areas and I came up with this design. I achieved to go from 0.07mm all the way to 0.03 mm.









