

Design for Manufacture

Adam Finnerty

18223702

PROJECT OUTLINE

Design Brief	1
Research Investigation	2 - 5
Styling and CFM Board	6
Sketch Study	7 - 12
3D Modelling	13
The Desirables	14 - 16

PD4105 - Design For Manufacture



100% of module Duration 7 weeks



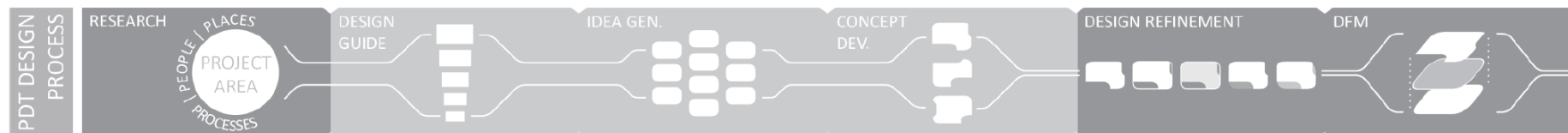
Project Background & Information

Understanding how products are manufactured and assembled are important design skills and can have a massive influence on the design of every product. As a designer, it is paramount that one understands manufacturing processes, their capabilities and constraints. With that knowledge, one can ensure design intent is maintained throughout the whole development process.

Compromises are the reality of real world designs. Should your concept be too costly to manufacture, or is simply unproducible in its current form, a redesign or iteration may be necessary.

The translation of detail from an idea to a physical good, whether aesthetic, interactive or mechanical, can be a challenge within itself. To this end, one should take inspiration from what has come before to understand how these details have been realised. During this project, you will learn about manufacturing techniques, part and form detailing and bill of materials.

Project Stage	Stage Details	Deadline
Stage 1 30%	Research & Refinement Begin by disassembling appropriate existing products. Analyse their internal structure, part makeup and assembly considerations. Document your findings and observations. Additionally establish a style and look of the product. Create a Colour, Material and Finish (CFM) board to follow. Create a new iteration of your supplied form model. The model must have two major changes and highlight split lines, bodies, touch points and details. Accompany model with detailed sketch work. Deliverables: Research in process book. Iterative sketch study using sections, and exploded views. Style and CFM board. Completed form model.	Week 6
Stage 2 60%	Design Execution Build a 3d model database, following (to the best of your ability) the strategy set in place during Stage 1. The product must have high quality exterior surfaces and detailing as well as resolved internals. Fastening, mating and structural details must be evident as well as drafting and moulding considerations. A full suite of technical drawings will be also be produced to explain dimensions, interior detailing and the BOM (Bill of Materials). Deliverables: Database of master assembly, sub-assemblies and individual parts. Full suite of technical drawings (digital).	Week 10
Stage 3 10%	Create a series (at least 3) of visuals that can be used on a social media platform. The visuals should be of high quality that highlight the product details and form. You will also create a short, turn table animation of your product. Deliverables: Series of rendering (digital), turntable animation (video) A digital document mapping your process and decision making throughout the project. Deliverables Process book submitted digitally as a PDF.	Week 12

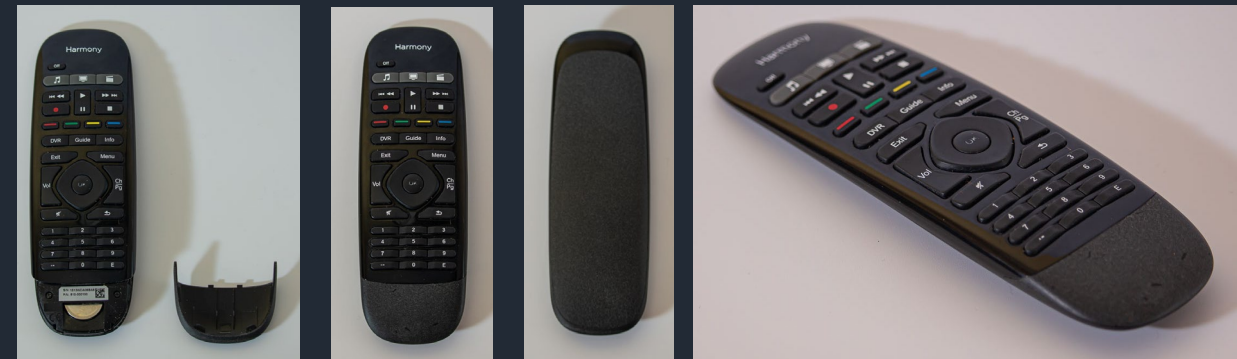
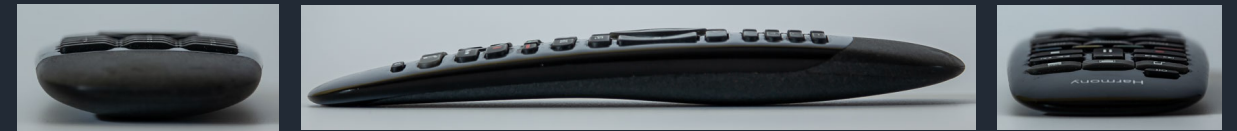


RESEARCH INVESTIGATION

Existing Remotes



DESIGN FOR MANUFACTURE



- Streamlined body looks
- Removeable covers
- Grey-scale colours

- Simplified button layouts
- Comfortable in the hand
- User friendly

RESEARCH INVESTIGATION

Existing Remotes

DESIGN FOR MANUFACTURE



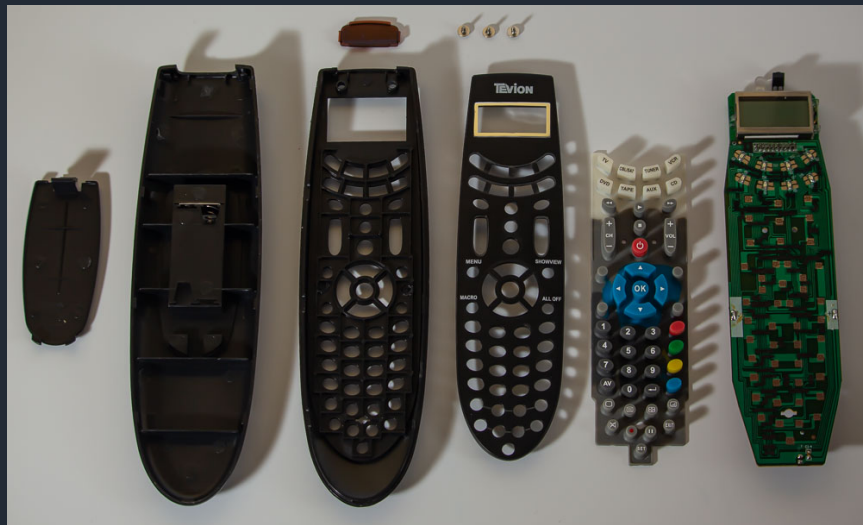
- Robust body looks
- Older remotes are 'solid' bodies (not easily separated)
- Grey-scale colours

- Digital displays for multifunctional programming
- Very large form factors
- Distracting amount of buttons

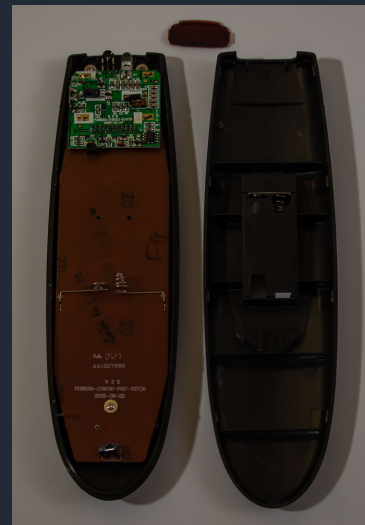
RESEARCH INVESTIGATION

Remote Teardowns

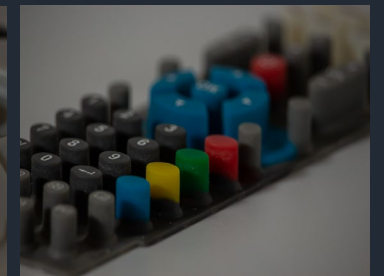
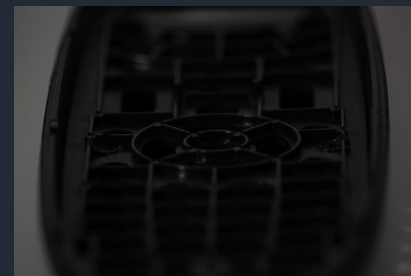
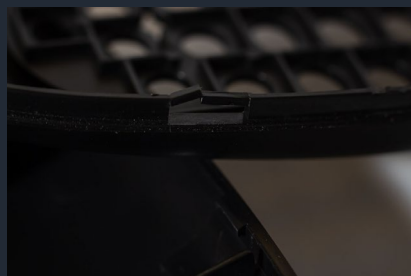
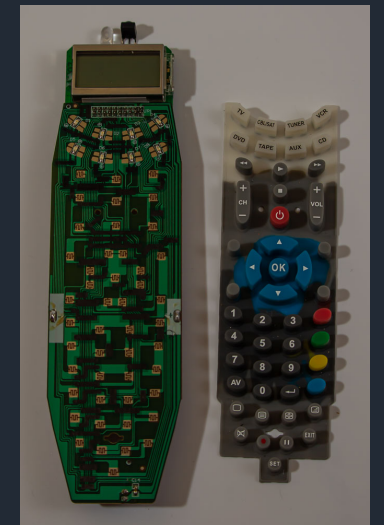
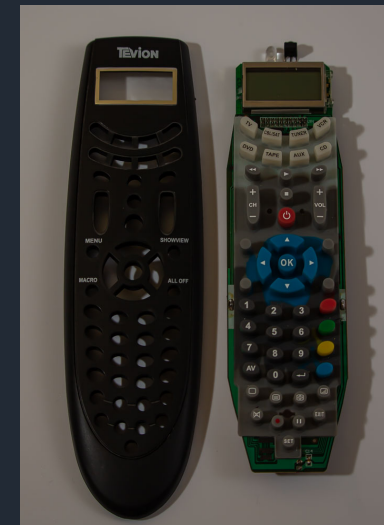
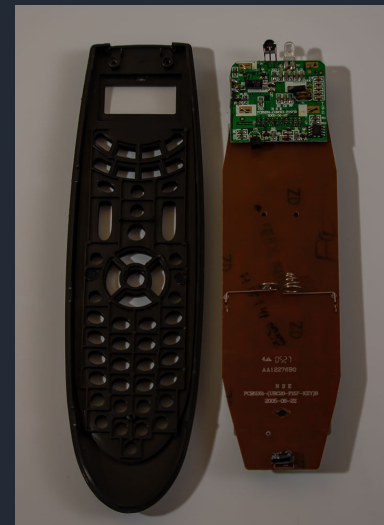
DESIGN FOR MANUFACTURE



General Disassembly



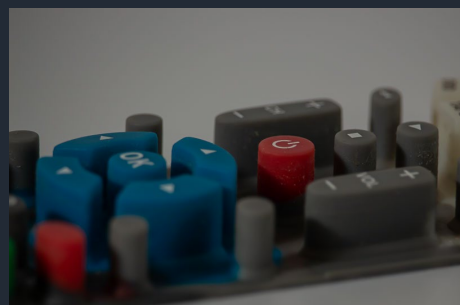
Ribs
Provide flat area for PCB



Semi-permanent snap hooks
Broken snap-hook grooves from taking it apart

Permanent pins
Broken locating pins, permanently melted in place

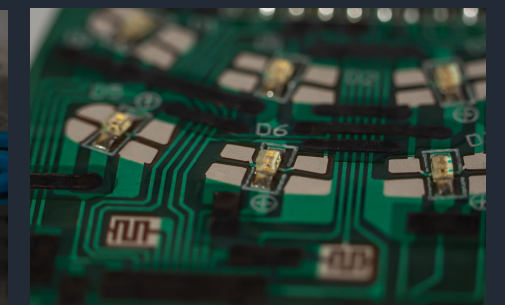
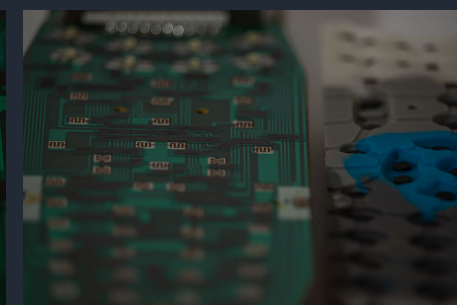
Buttons
Carbon based pins in compression moulded silicon



Labels
Screen printed labels



PCB
Fun macro shots of circuitry and button pads on PCB.



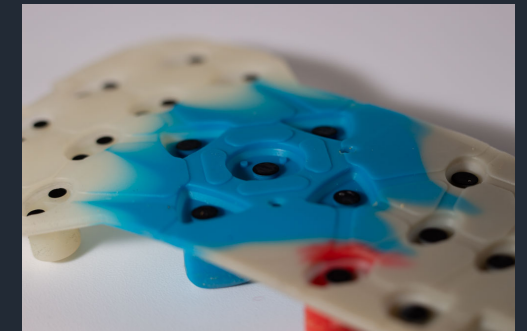


General Disassembly



Buttons

Carbon based pins in compression moulded silicon



Battery Compartment

Snap hook lid for the battery compartment



Buttons closeups

Comparison of two remotes



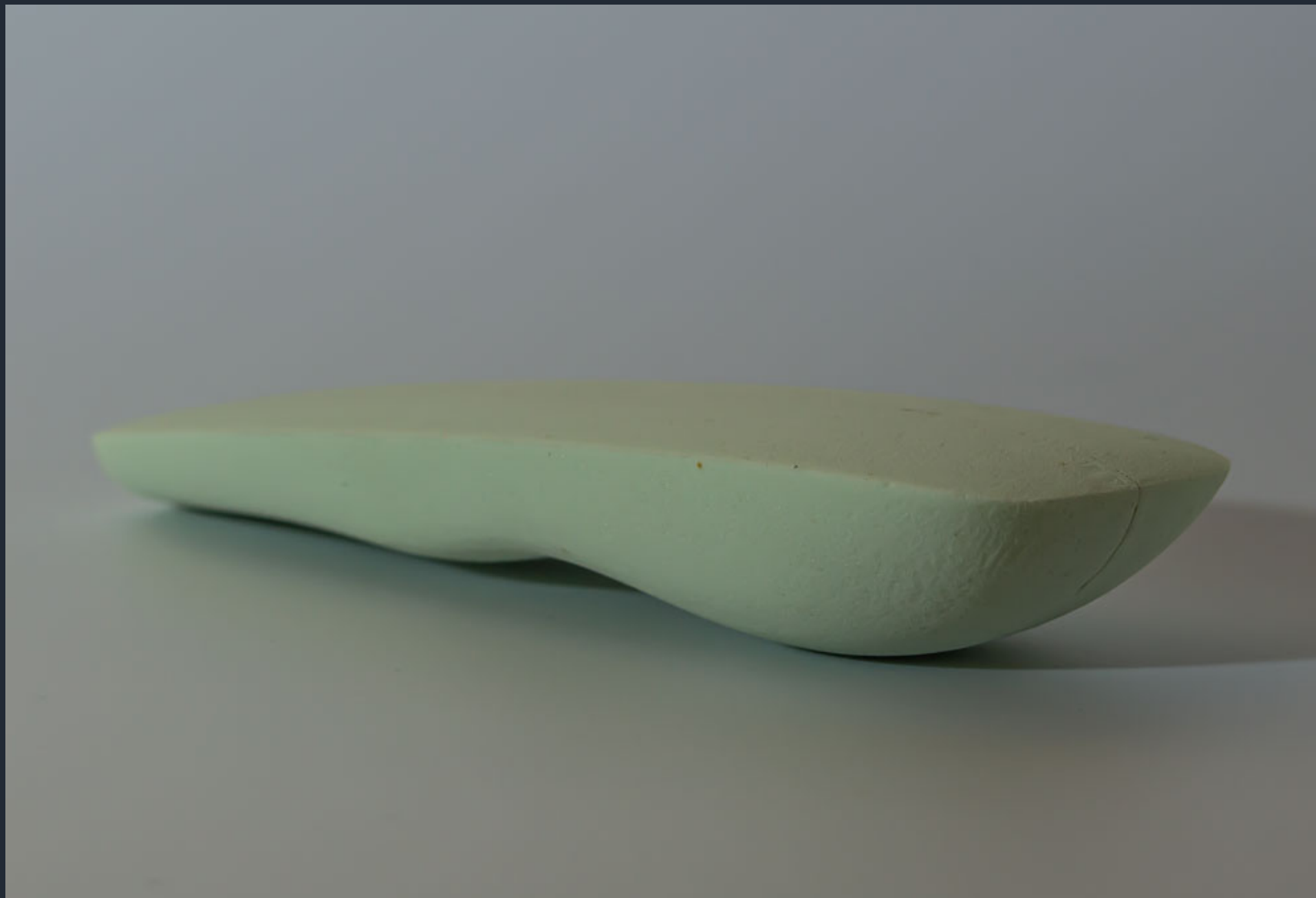
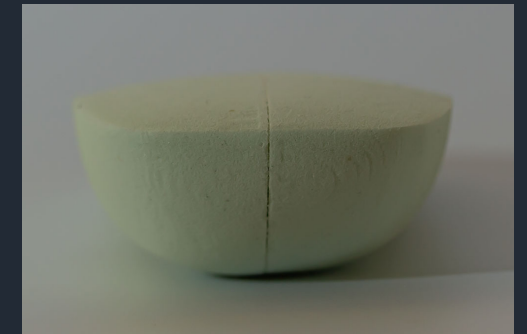
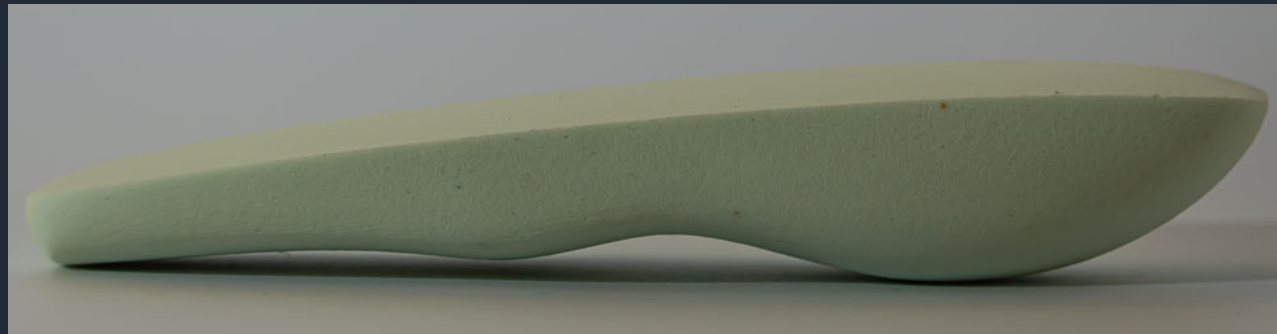
Battery Compartment

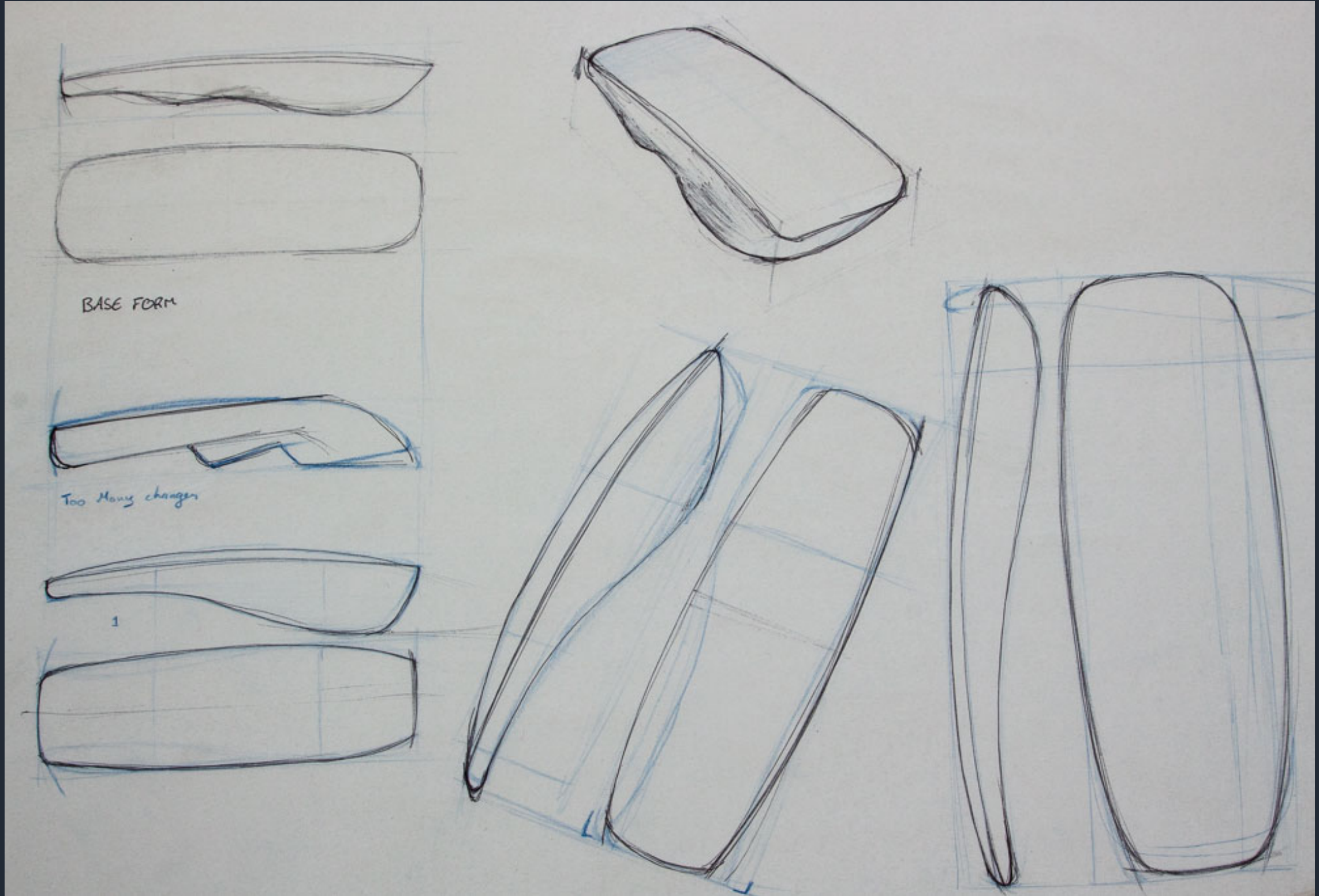
Springs for battery connectors + LED infrared transmitter

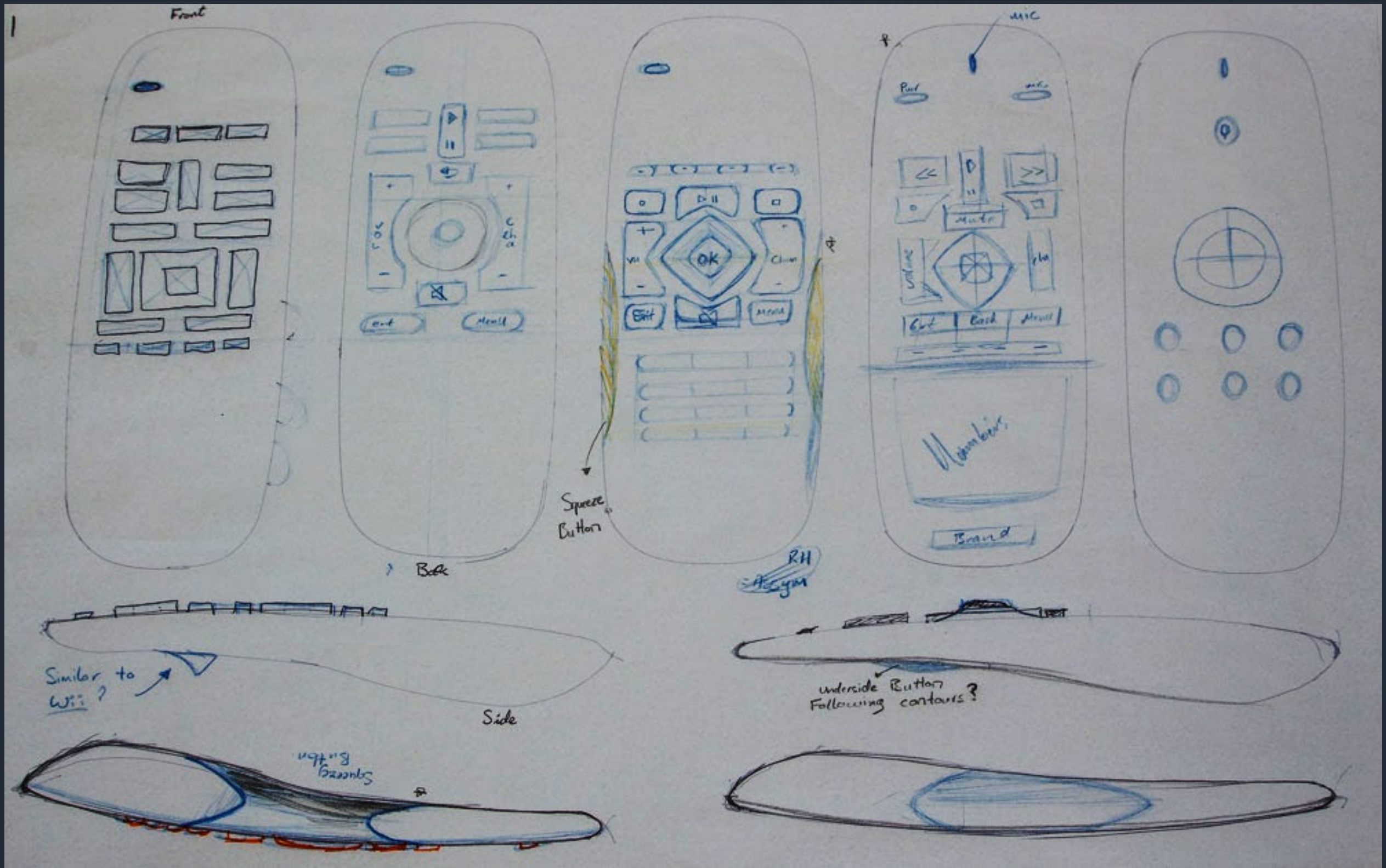


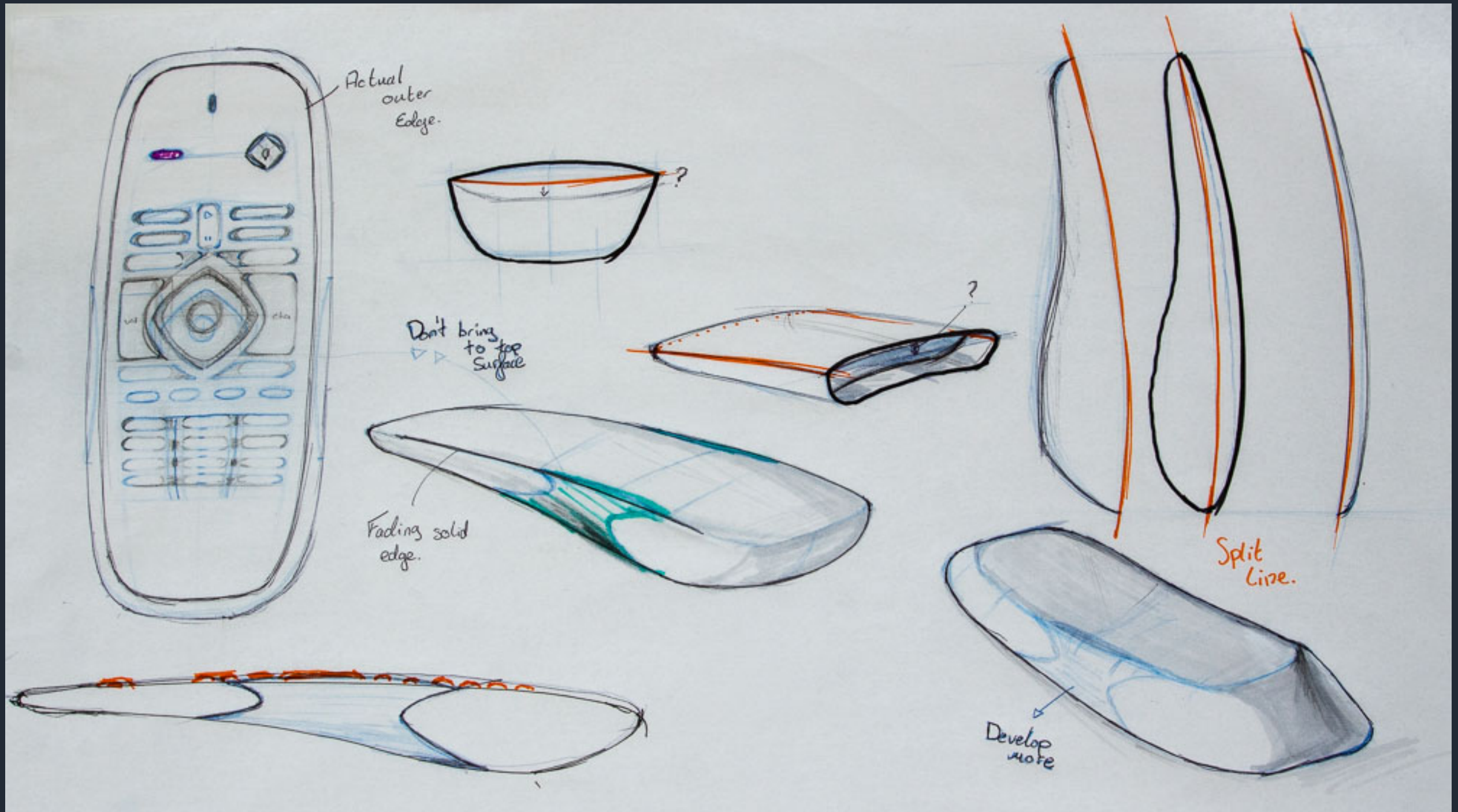


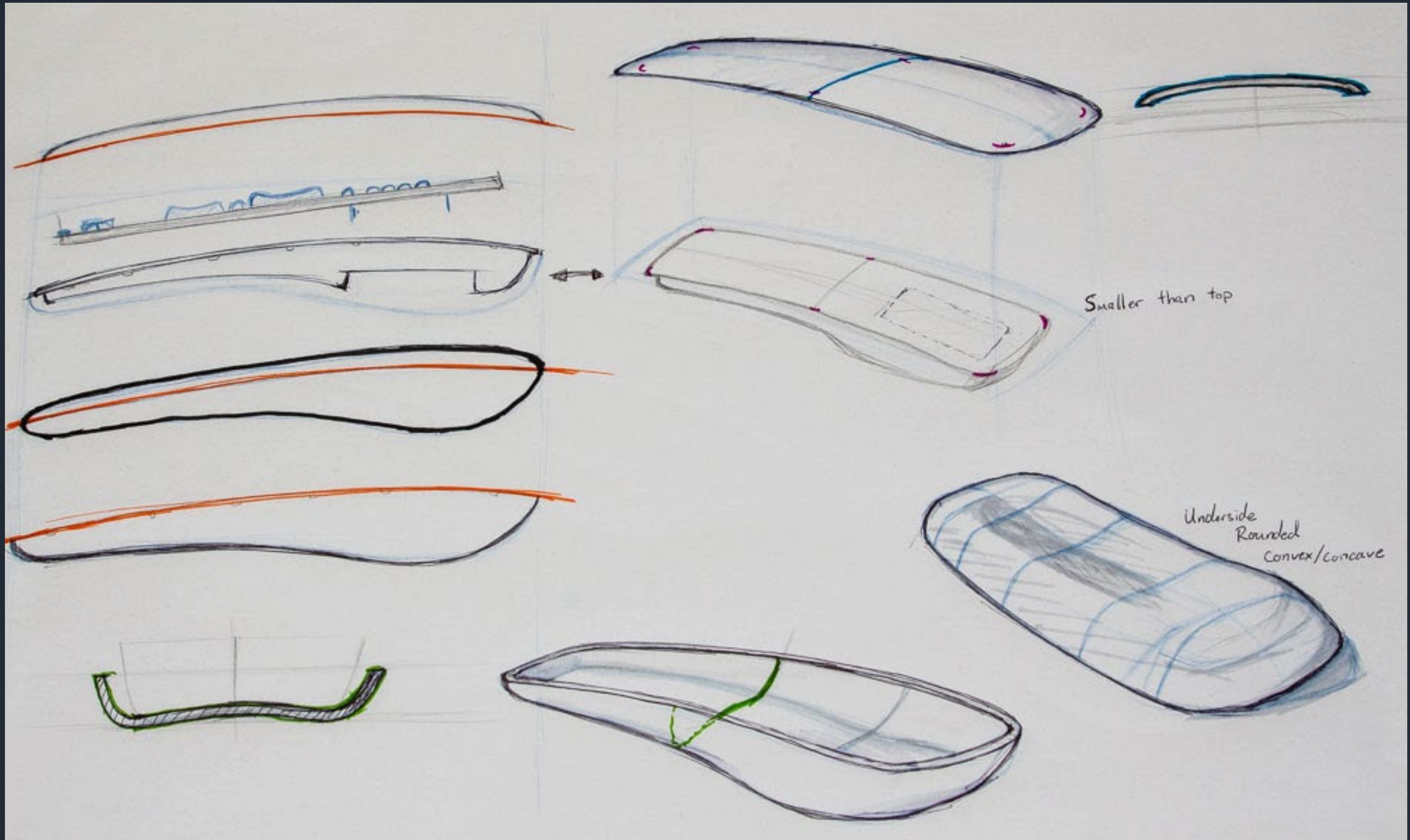
- Matte/ Satin surfaces
- Contrasting materials
- Stylistic buttons
- Curvilinear surfaces

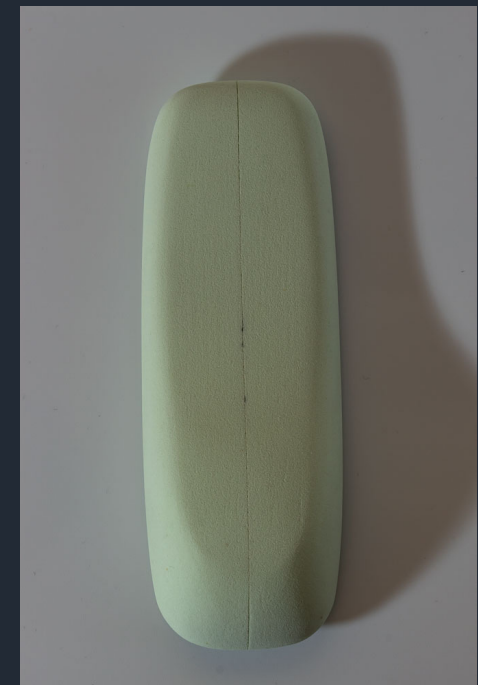
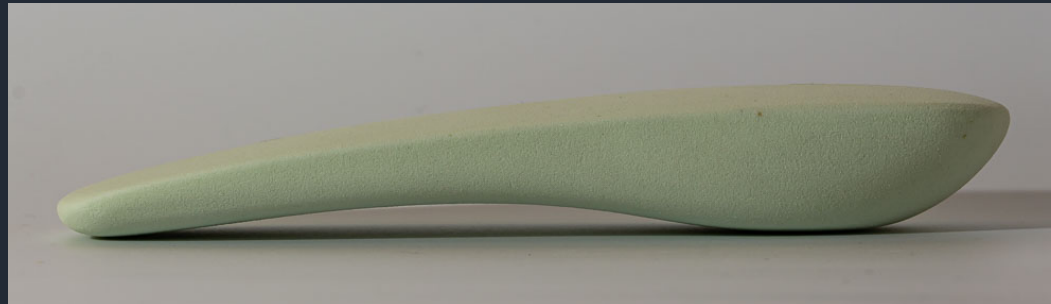


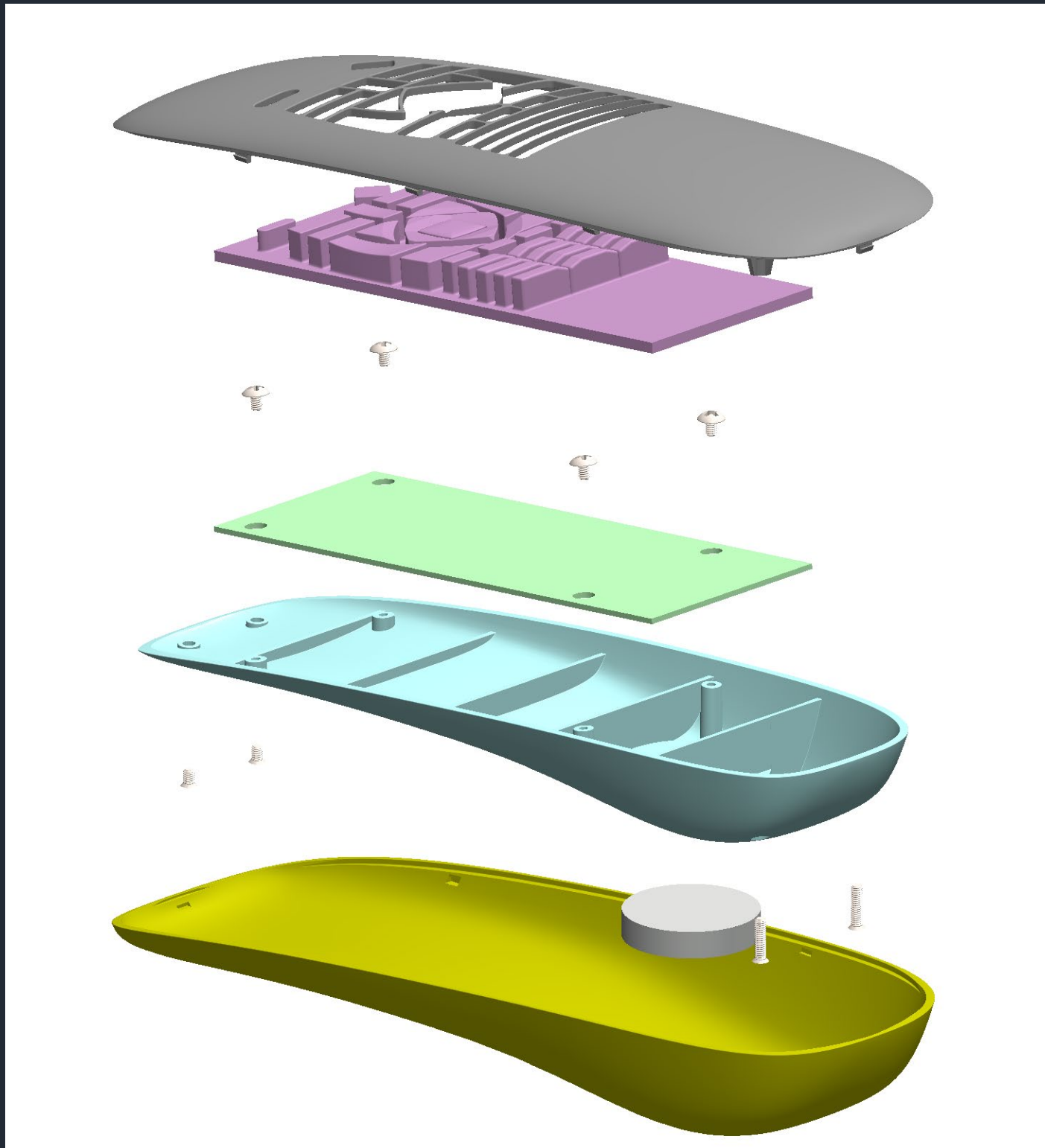












CAD database and technical drawing suite submitted separately but for continuity sake, a screenshot of the final assembly in an exploded state.





