PORTFOLIO

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# OEM Humidifier

## Brief

Design a hardware product that expands **OEM's** presence beyond consumable care, translating their brand language into hardware through form, materials, and interaction.

Project: Offsite
Year: 2026
Duration: 6 Weeks
Brand: OEM




## Brand Introduction

**OEM** is a wellness brand creating deliberate, sensory-forward products for the body and its environment, rooted in a 360° philosophy of care that spans hydration, scent, skin, and community.

**Tagline:** a new drug store

**Values:**
- Care over cure
- Honesty
- Intentionality
- Impermanence
- Community
- Sensory wholeness
- Japanese sensibility





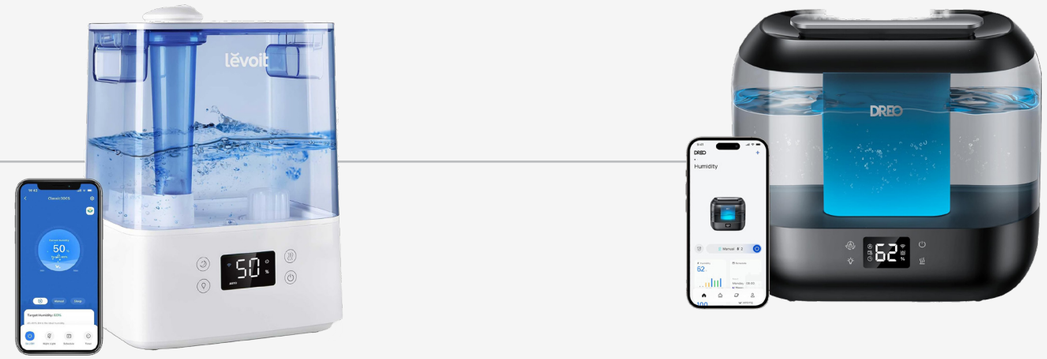


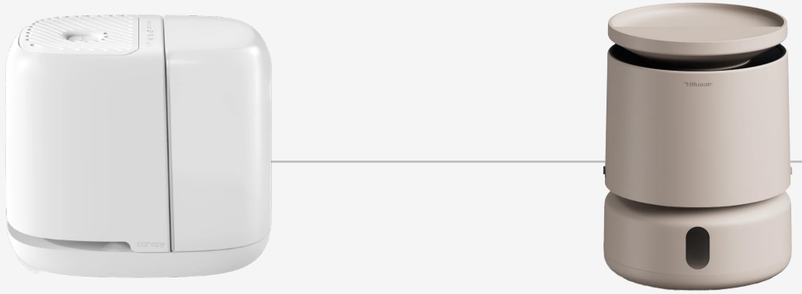
## Opportunity

**OEM** produces consumable care products (liquids, scents, ingestibles), but lacks a physical object that shapes the environment these rituals exist within.

A humidifier can act as a platform for consumables such as **distilled water** and **scent,** transforming them from standalone products into inputs of a continuous ritual, enabling recurring engagement through refills, and supporting both physical and mental wellbeing.

Clinical Design
App Controlled





Noisey
Unnecessary Light

Hard to Clean
Moisture Traps







## Humidifier Market Analysis

Most humidifiers are clinical looking in design and don’t visually belong in the home. Evaporative humidifiers are noisy, require filter replacements, and are constrained to large form factors.

**Insights:**

- Domestic Design
- No Light
- Physical Controls
- Ultrasonic Tech
- Large Radii and Openings















**OEM**’s products are defined by an organic form language built from **circles**, **large radii**, and **soft, continuous curves.**







Their CMF emphasizes **natural, earth**-like tones and **honest materials**, with predominantly **matte** or **metallic finishes** and moments of **subtle transparency.**







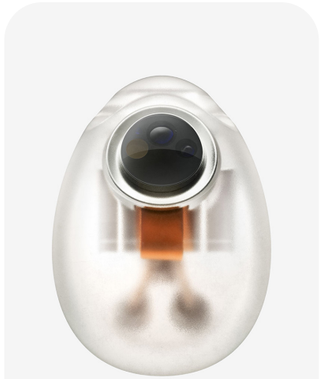


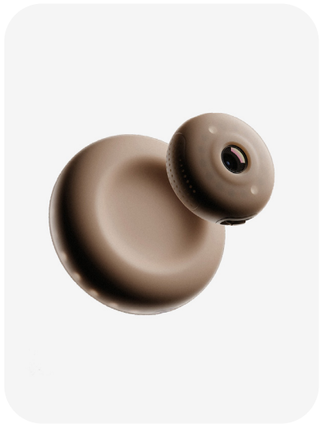






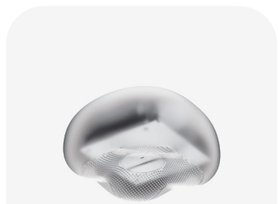






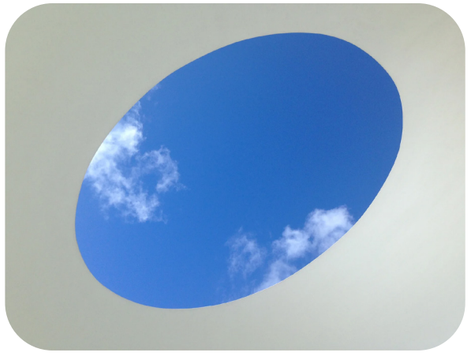






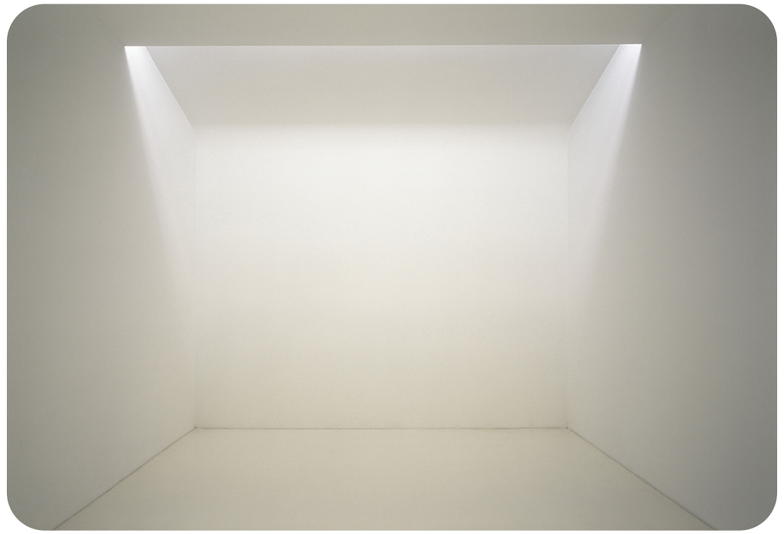






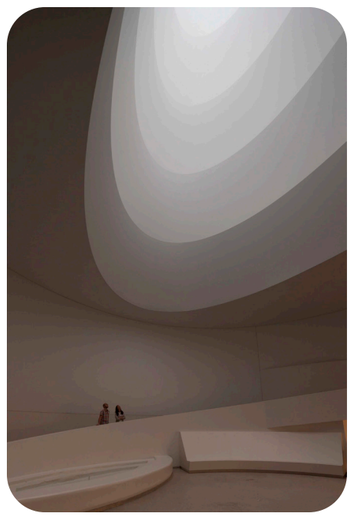




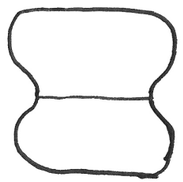






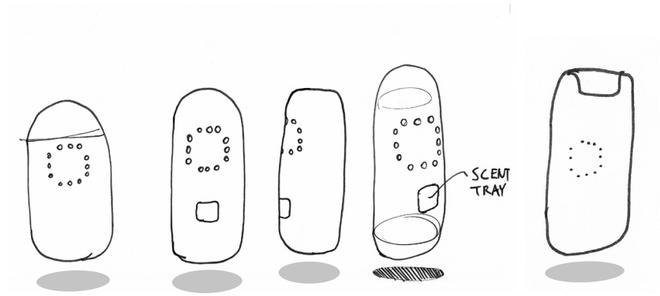


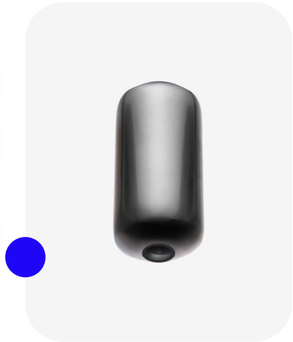








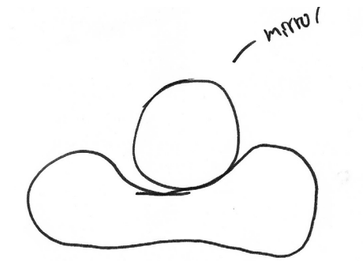

SCENT
TRAY





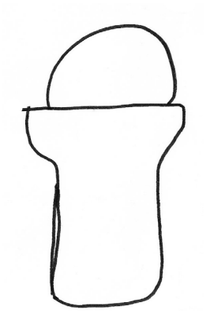






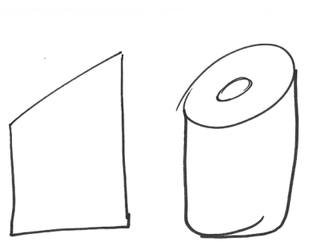


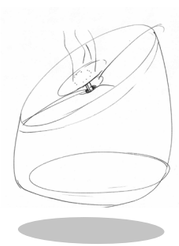


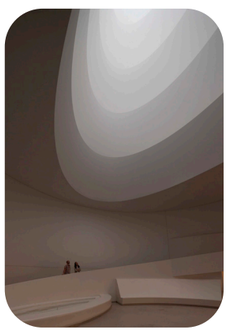































On Earth Momentarily™




# Hoto Stud Finder

## Brief

Identify a gap in **HOTO’s** current product lineup and design a lifestyle tool to fill it, utilizing their distinct design language, aesthetics, and CMF strategy.

Project: Self-Initiated
Year: 2026
Duration: 8 Weeks
Brand: HOTO




HOTO

## Brand Introduction

**HOTO** is a lifestyle-oriented tools brand creating minimal, approachable products for **renters** and **casual home users**, focused on light-duty tools for everyday home tasks.

**Brand Positioning Statement:**
Inspiring innovation, transforming the way creators work.

**Values:**
- Design Aesthetics (Functional, Desirable)
- Cutting Edge Technology
- Professional Quality (Reliable, Trusted)




## Product Gap Analysis

**HOTO's** electric drill and tape measure are widely used by **urban renters** for mounting TVs, shelves, and artwork, but **stud finders** are often overlooked due to unfamiliarity or intimidating designs, leading to avoidable safety risks and wall damage.

Construction Colors


















Exposed Instructions

Cheap Plastic CMF
Utilitarian Forms










## Stud Finder Market Analysis

The stud finder market is currently divided between aggressive industrial products and low-quality consumer alternatives, creating a clear opportunity for an inclusive design approach that combines professional-grade reliability with a refined, lifestyle-oriented design language.

Circle, Squircle,
or Pill Form



Tri-Tone CMF
Textured Matte-
Black & Gray Plastic
Glossy Black Plastic



Yellow Accent
Signifier



# Brand Language Analysis

**Form**

- Extruded Circle, Squircle, or Pill
- Large Chamfer/Radius & Sweep Cuts

**Detail**

- Text Logo
- Knurling
- Concealed Fasteners
- Minimal Number of Buttons & Switches
- Form, Detail & CMF Signifiers
- USB-C / Lithium-ion Battery

**CMF:**

**Base Color**

- Grey-scale (Black, Grey, White) or Blue

**Accent Color**

- Yellow

**Material**

- ABS+PC

**Finish**

- Textured+Matte and Glossy



## User Interview & Research

“There was a lot of **doubt** about whether it (stud finder) was **trustworthy**. I think in part because of the quality of the material, but also because it was constantly sort of like throwing errors.”

Interview with Rian, Urban Planner, Brooklyn, NY

“Unfortunately, I had to return this product as I found it **too confusing** to use.”

Quote from Besiana on Mecurate Stud Finder, Amazon Reviewer, United Kingdom

## Insights

- **Users need to feel confidence and trust.**

  Reinforce this through clear feedback (haptics, light, sound) and a high-quality build expressed through material choice, texture, weight, and form.

- **Users value clarity over complexity.**

  Design for approachability through a simple intuitive interface and focused functionality.






## Role-Playing

I hung a picture in my apartment to empathize with the existing user experience and identify pain points throughout the user journey.

## Evaluation

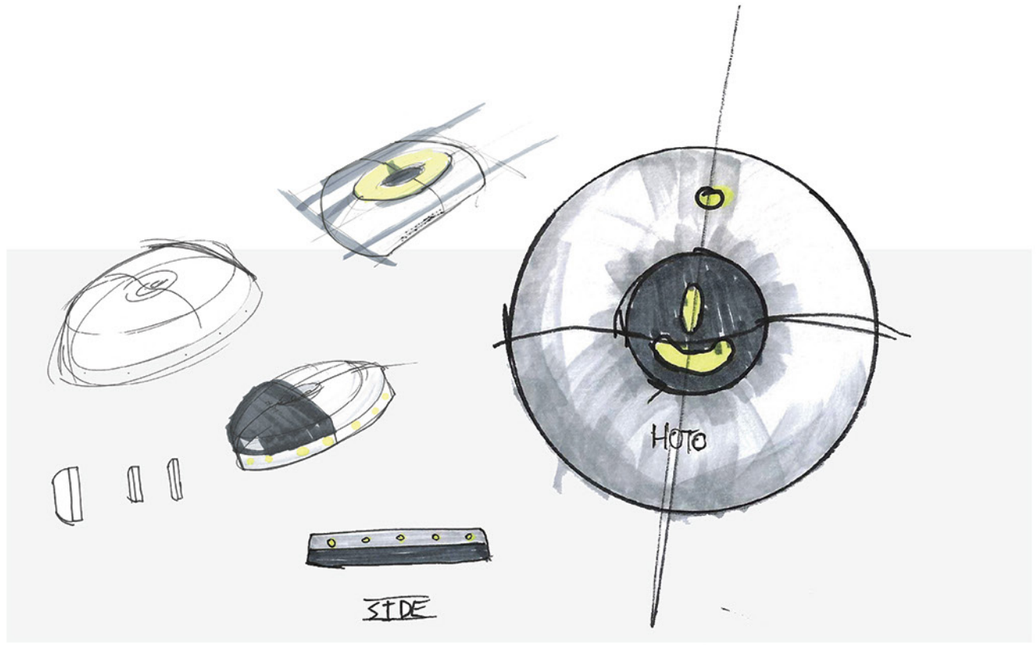
**Positives:** Ergonomic, Smooth interaction, Instructions on back of device

**Negatives:** CMF, Form, UI

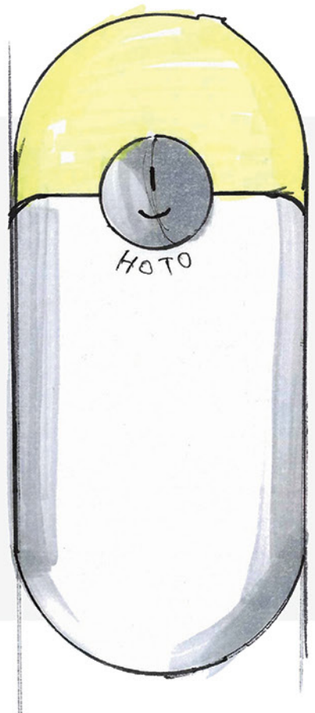
## Insight

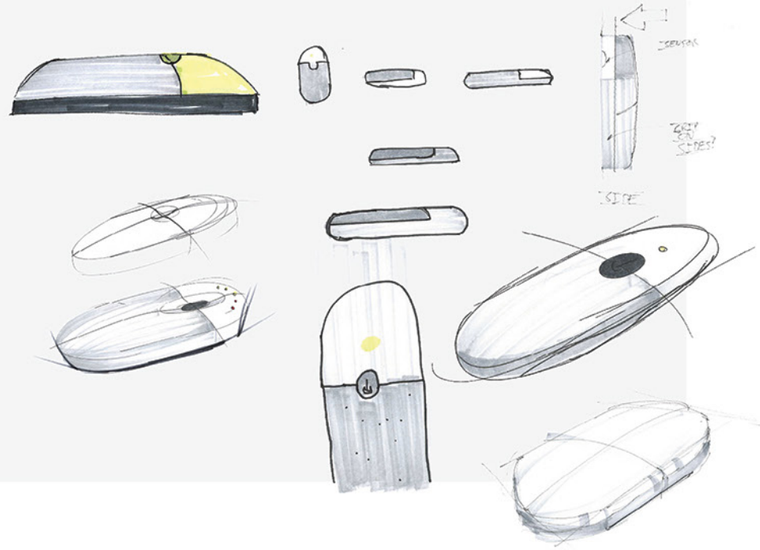
- **Physical interaction should feel effortless and controlled.**

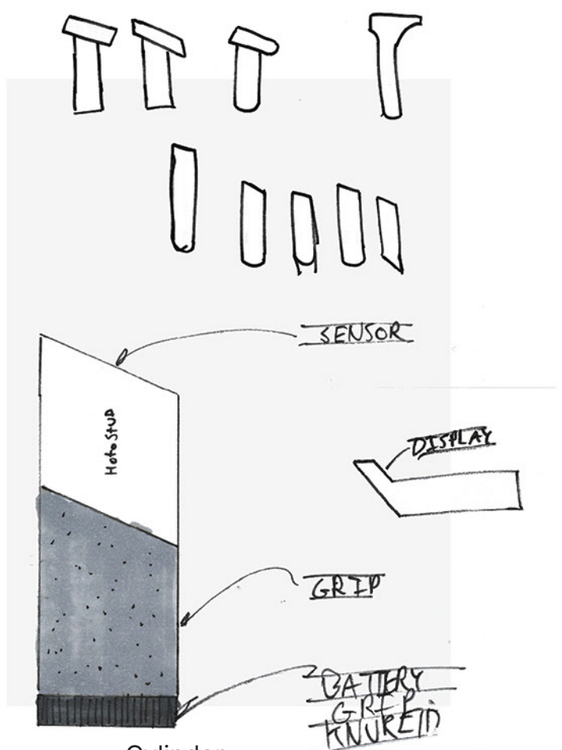
  Use low-friction materials on contact surfaces (Velcro, PTFE feet) to create smooth enjoyable interaction.



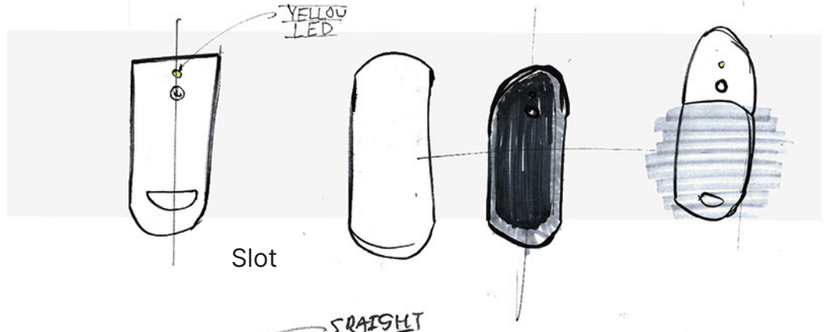

Circle



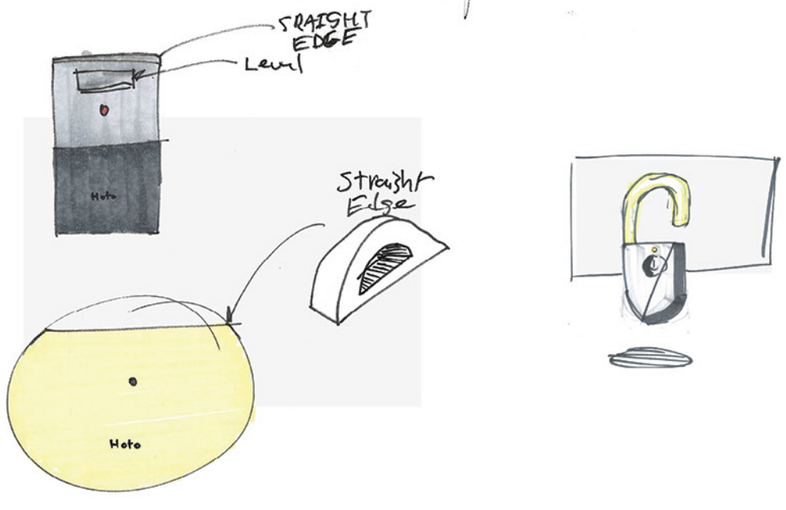






Cylinder

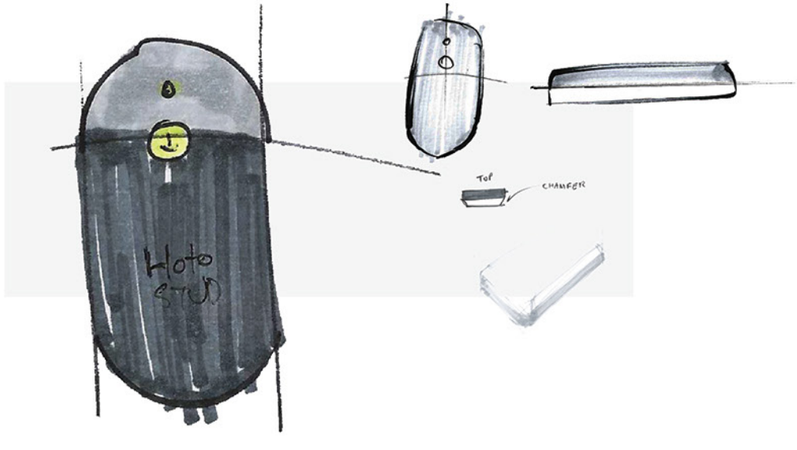



Slot







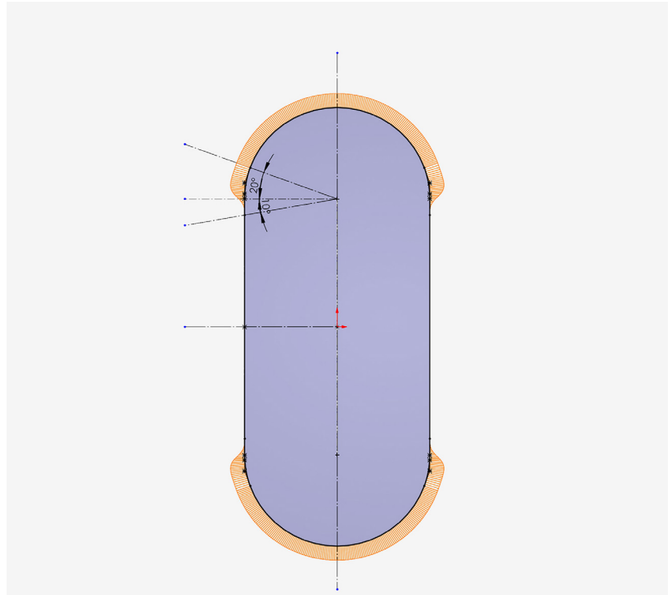




I explored forms derived from circle and slot extrusions.



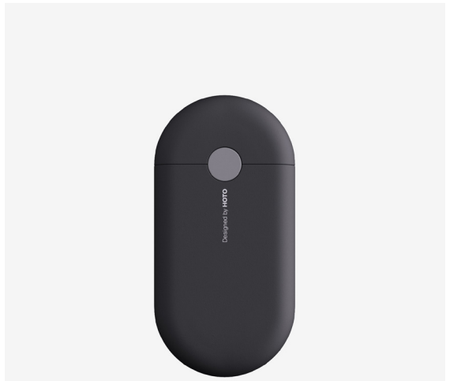





26°
5°

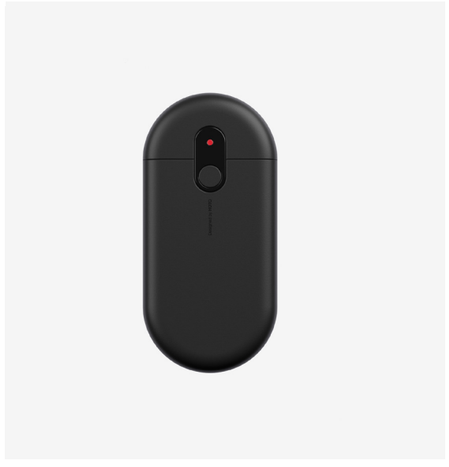


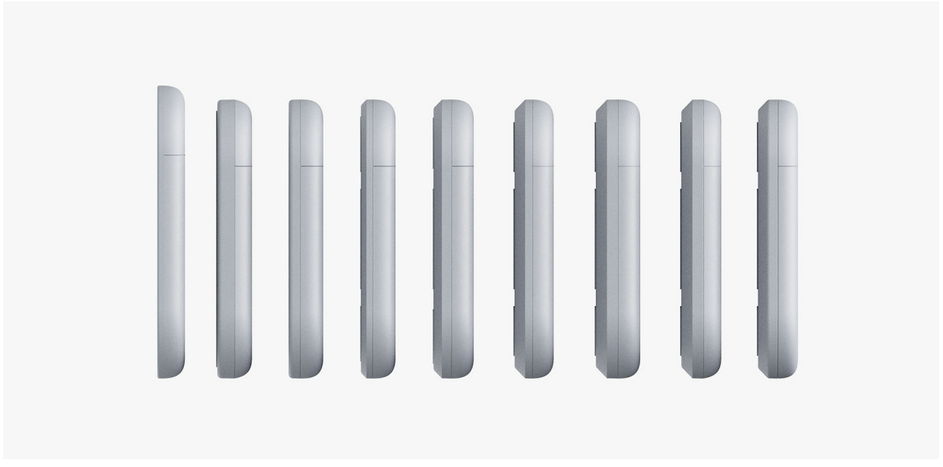




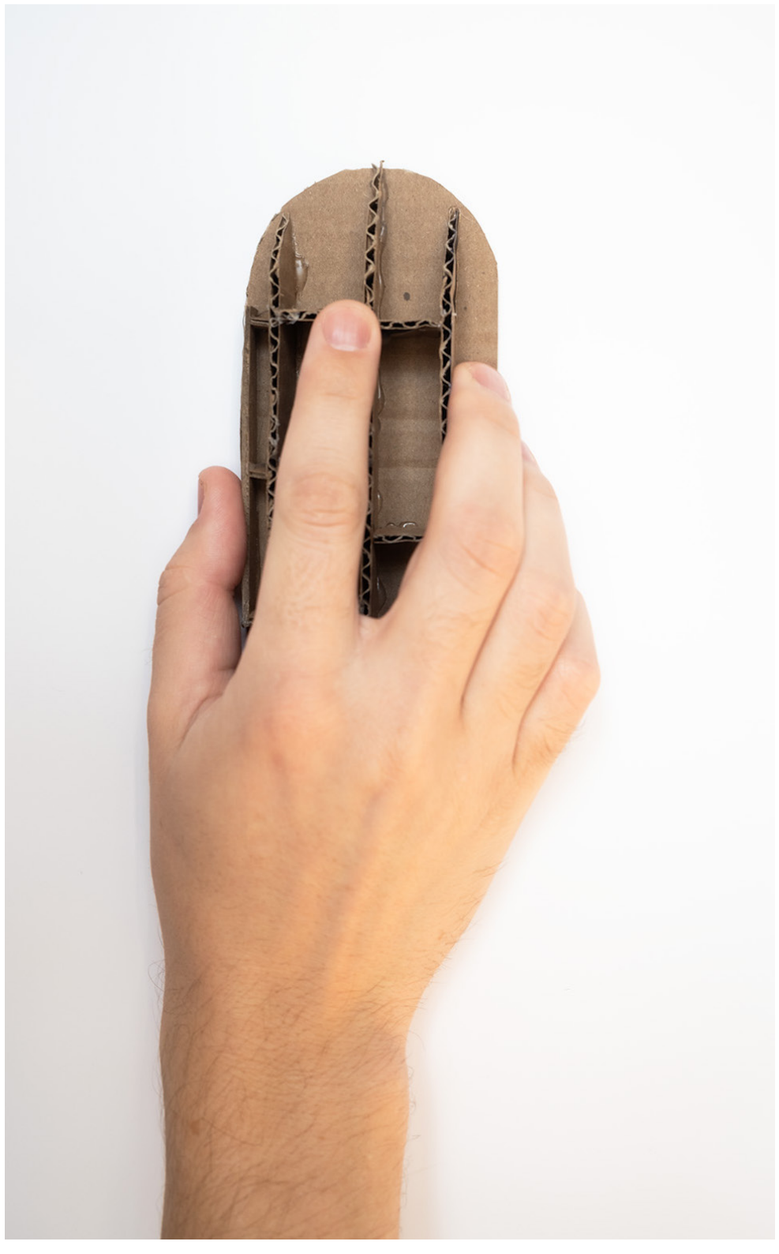








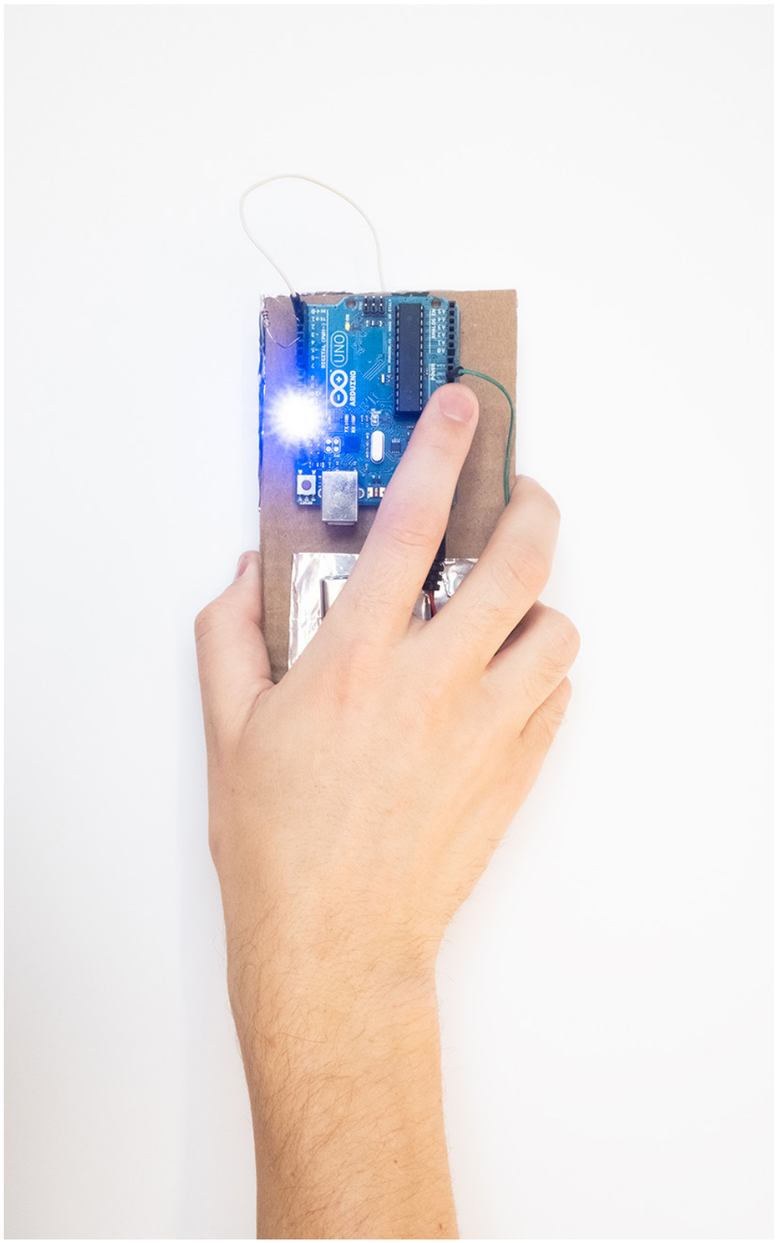








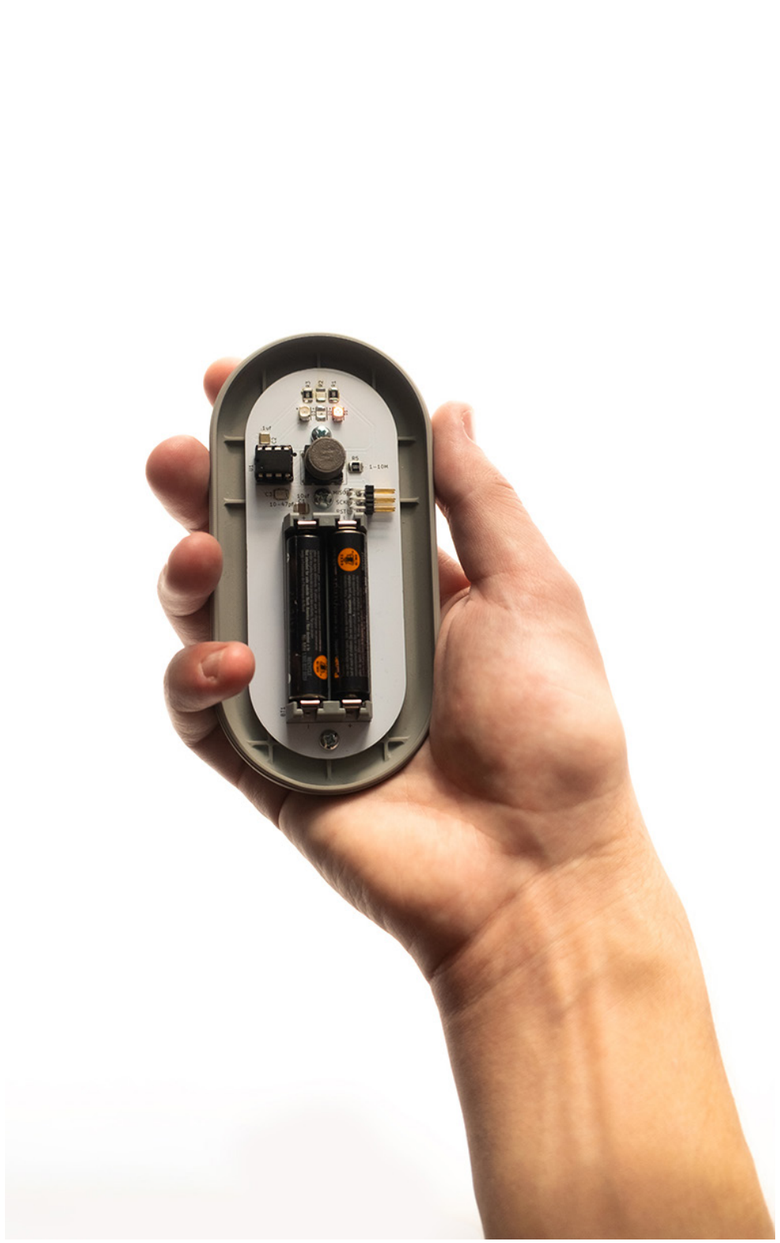
**Testing** form, size, ergonomics, button placement, and button indentation.



Cardboard and aluminum foil prototype **confirmed** that capacitive sensing could detect studs through drywall.



PCB prototype **validated** the single LED/button interaction, component layout and fit within the FDM prototype.



PCB revision **refined** component layout and BOM, swapped button for improved tactile click, and increased board size to improve space between edge and screw hole.




Confirmed PCB hole and boss alignment. Iterating and refining the snap fit connection between the slot and top housing.

## CMF

Following **HOTO's** CMF strategy, the device combines textured dark and light gray matte plastics with black glossy accents. The neutral colors feel approachable rather than industrial, appealing to the target user group, while the contrast of matte and glossy surfaces conveys a sense of high value and quality.



## CMF and Form

The contrasting light gray back and large chamfer **visually thin the device**, creating a **floating effect** on the wall. The chamfer naturally encourages users to grab the device closer to the front, helping **prevent fingers from getting pinched** as it glides across the wall. The large radius on the front **cups the palm**, allowing comfortable operation of the single power button.



# CMF

Inspired by my Logitech mouse, I added low friction PTFE feet. They provide **ultra-smooth glide** across walls without scratching the wall or device. Clear, unobtrusive instructions for initial capacitance calibration maintain **HOTO's** clean CMF. The indented slot further **protects the pad print**.



# Technology

A copper plane on the bottom of the PCB enables low-power **capacitive sensing**, allowing studs to be detected reliably when the device is placed against a wall.



# Interface

A single LED simplifies communication between the user and the device by displaying only the most essential information: stud detection and power/calibration status. Limiting the interface to one indicator reduces unnecessary functionality, **focusing the interaction** and **minimizing uncertainty** to create a sense of confidence, clarity, and calm.




● ON/CALIBRATED



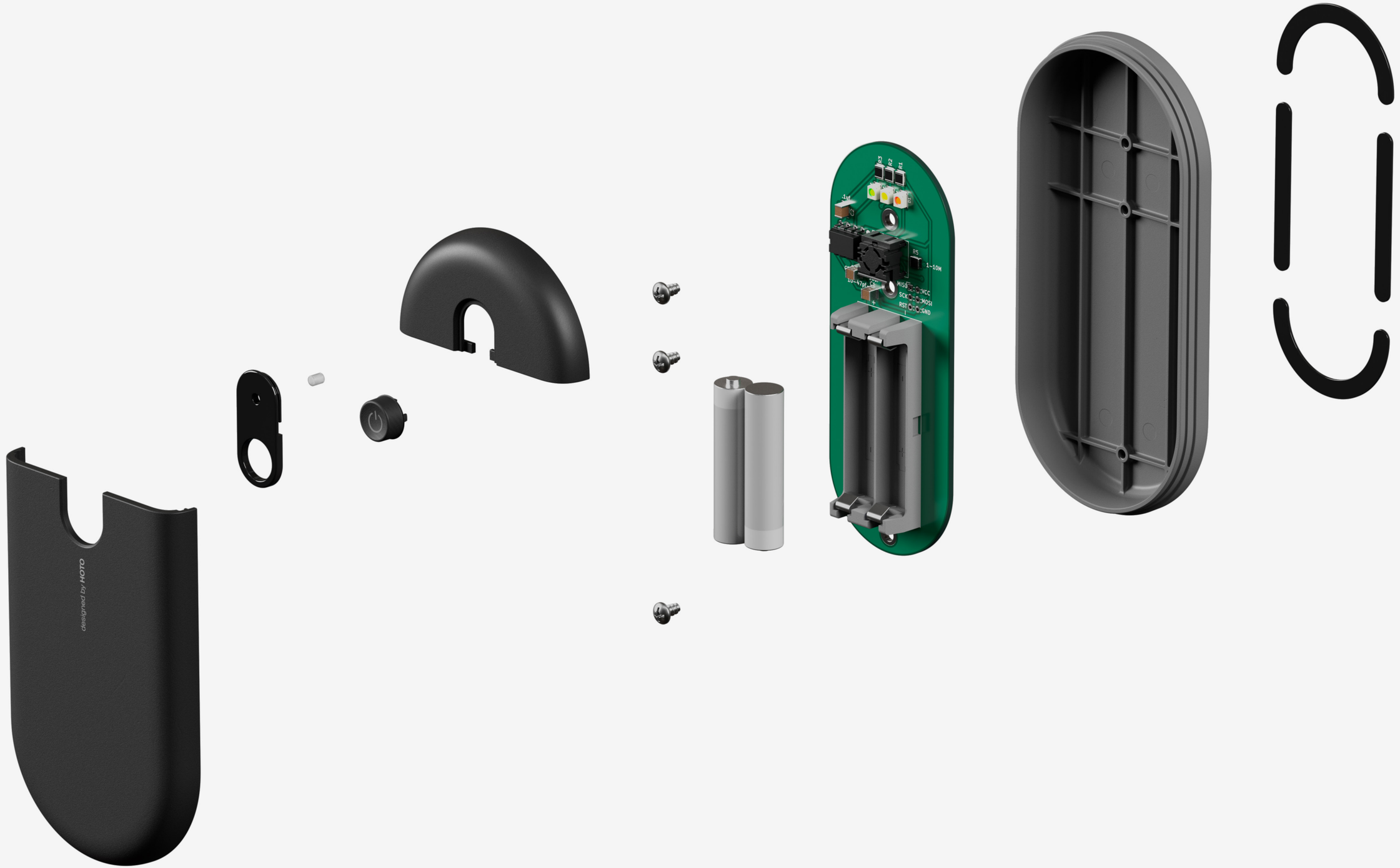

● STUD FOUND




● LOW BATTERY




● OFF


R3
R2
R1
1nf
R5
1~10M
10~47pf
MISO
VCC
SCK
MOSI
RST
GND
HOTO
designed by

# CMF Specification

## 1. Bottom and Top
Color: PMS 19-4203 TPG
Material: ABS+PC
Finish: Matte, VDI 27

## 2.Slot
Color: PMS Black C
Material: ABS+PC
Finish: High-gloss, SPI A2

## 3. LED Diffuser
Color: Translucent
Material: Optical-grade PC w/ light-diffusing additive
Finish: VDI 12
Haze: 70% (ASTM D1003)

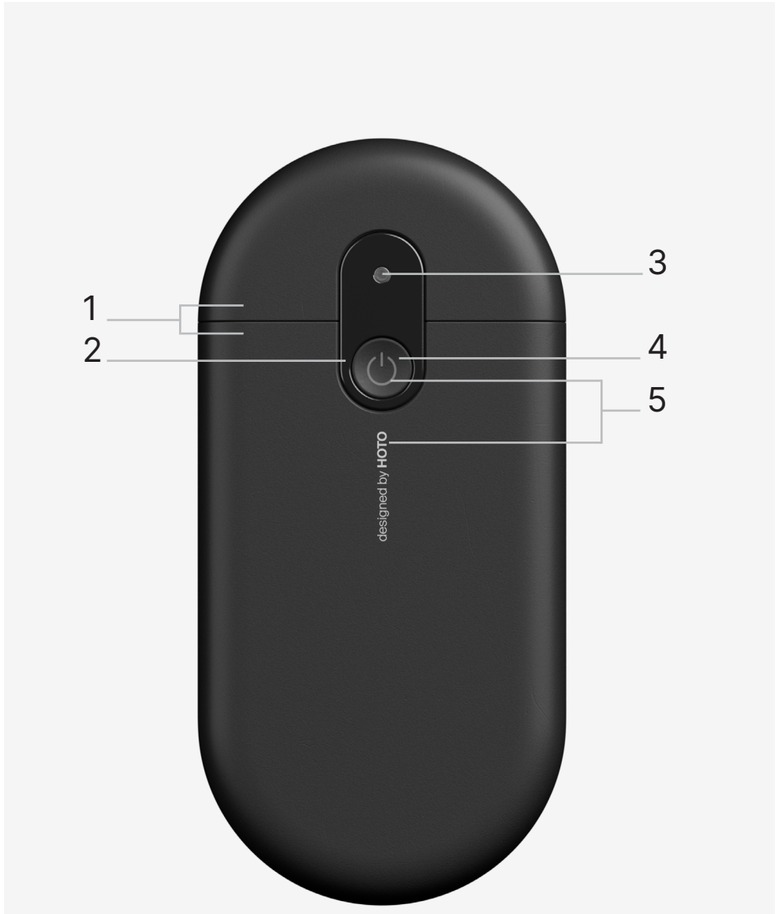
## 4. Power Button
Color: PMS 19-4203 TPG
Material: ABS+PC
Finish: Matte, VDI 27

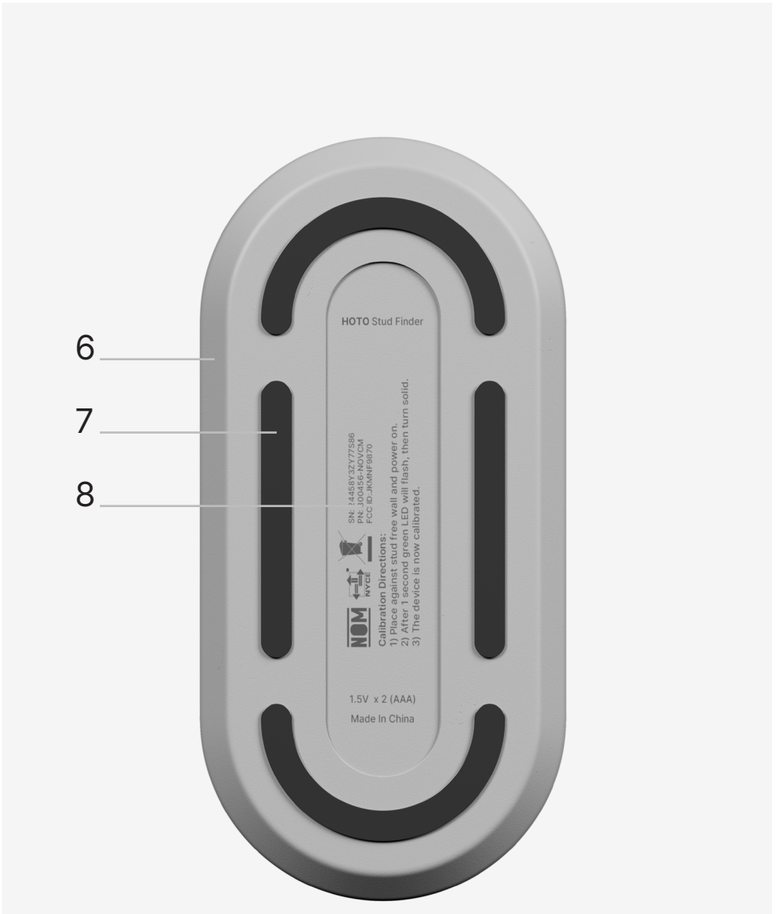
## 5. Front Labels
Color: PMS 10101 C
Finish: Matte
Process: Pad Printing

## 6. Back
Color: PMS 10101 C
Material: ABS+PC
Finish: Matte, VDI 27

## 7. Back Pad
Color: PMS 19-4203 TPG
Material: PTFE
Finish: Gloss (30% Matte)

## 8. Back Labels
Color: PMS 19-4203 TPG
Material: Matte
Process: Pad Printing




designed by HOTO

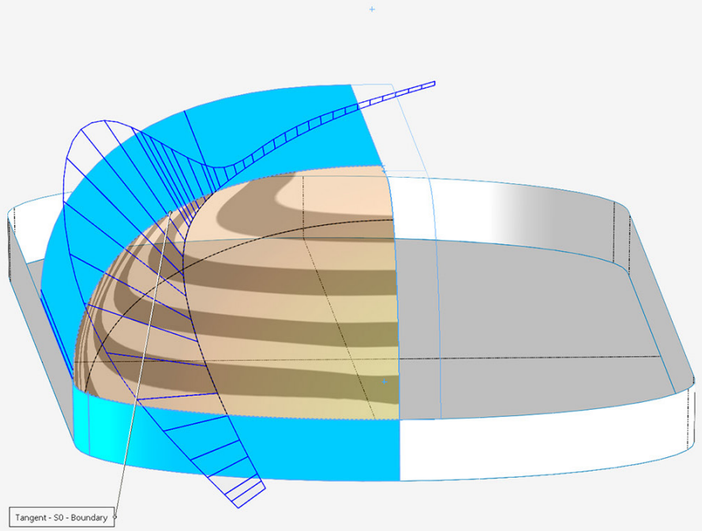


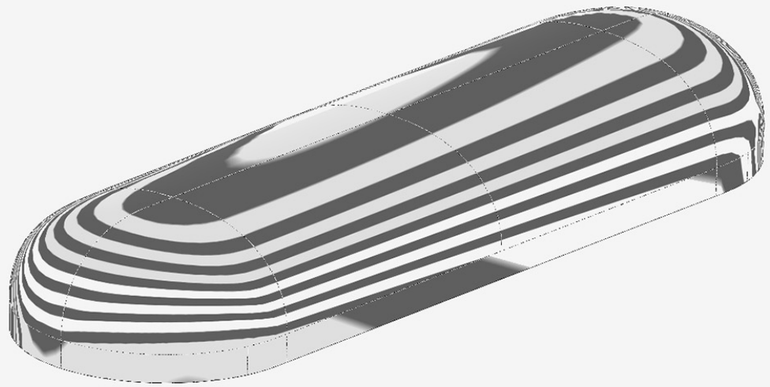

# Surfacing Exercise

## Brief

Practice surface modeling skills by modeling a product in your home.

Project: Self-Initiated
Year: 2026
Duration: 2 Weeks
Brand: Google


Tangent - S0 - Boundary




1


2


3


4


5


6


7


8


YouTube
Spotify





THE END

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