

HAPTIC ALARMS

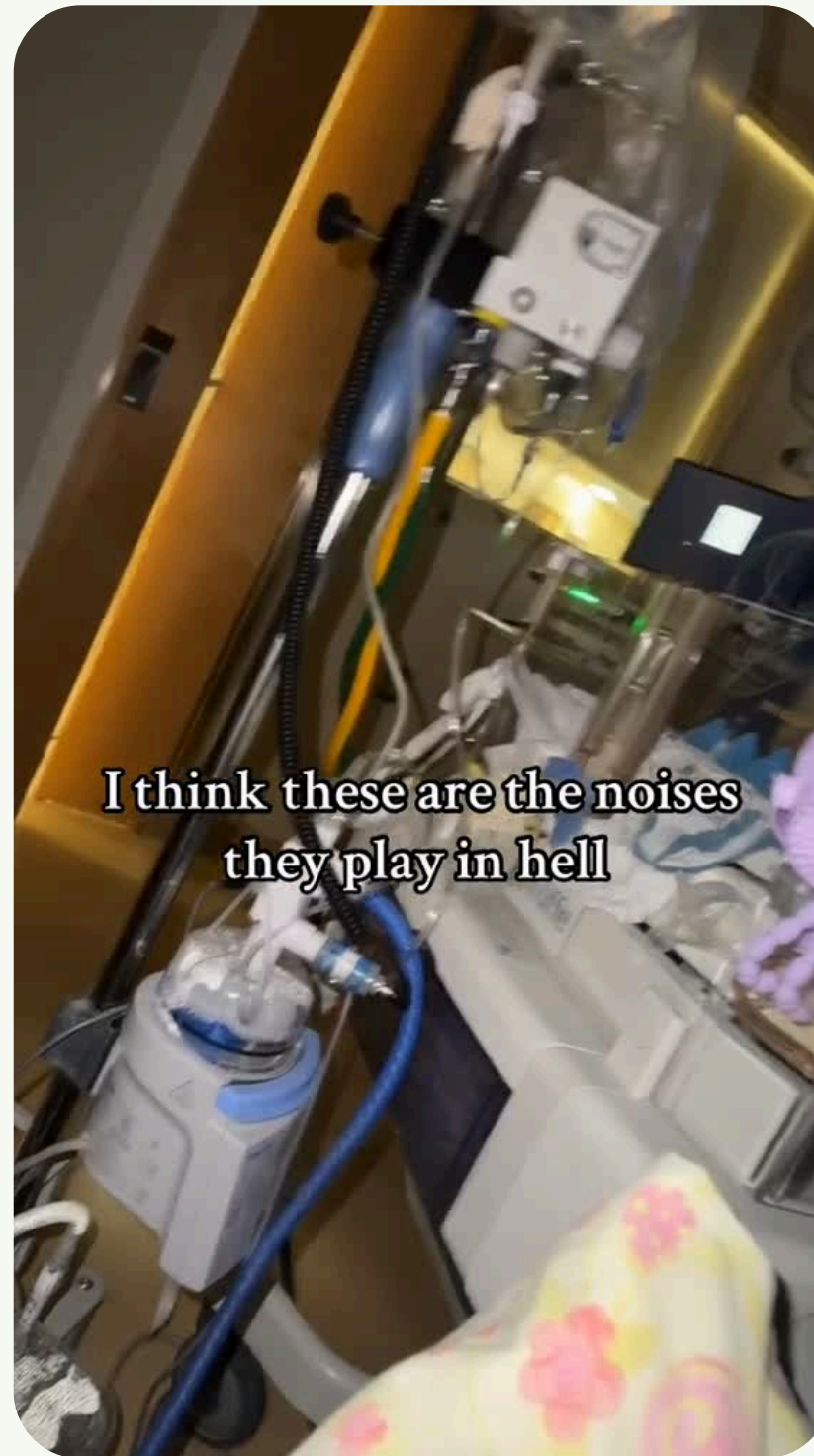
Presented by **O.B** Industries

NICU



"Newborn Critical Care | Wolfson Children's | Jacksonville, Florida." Accessed April 19, 2026.

The Issue



@ceeschultz_1776370879440
TikTok. "Ciarra | Mom of 2 (@ceeschultz)." Accessed April 19, 2026.
<https://www.tiktok.com/@ceeschultz>.

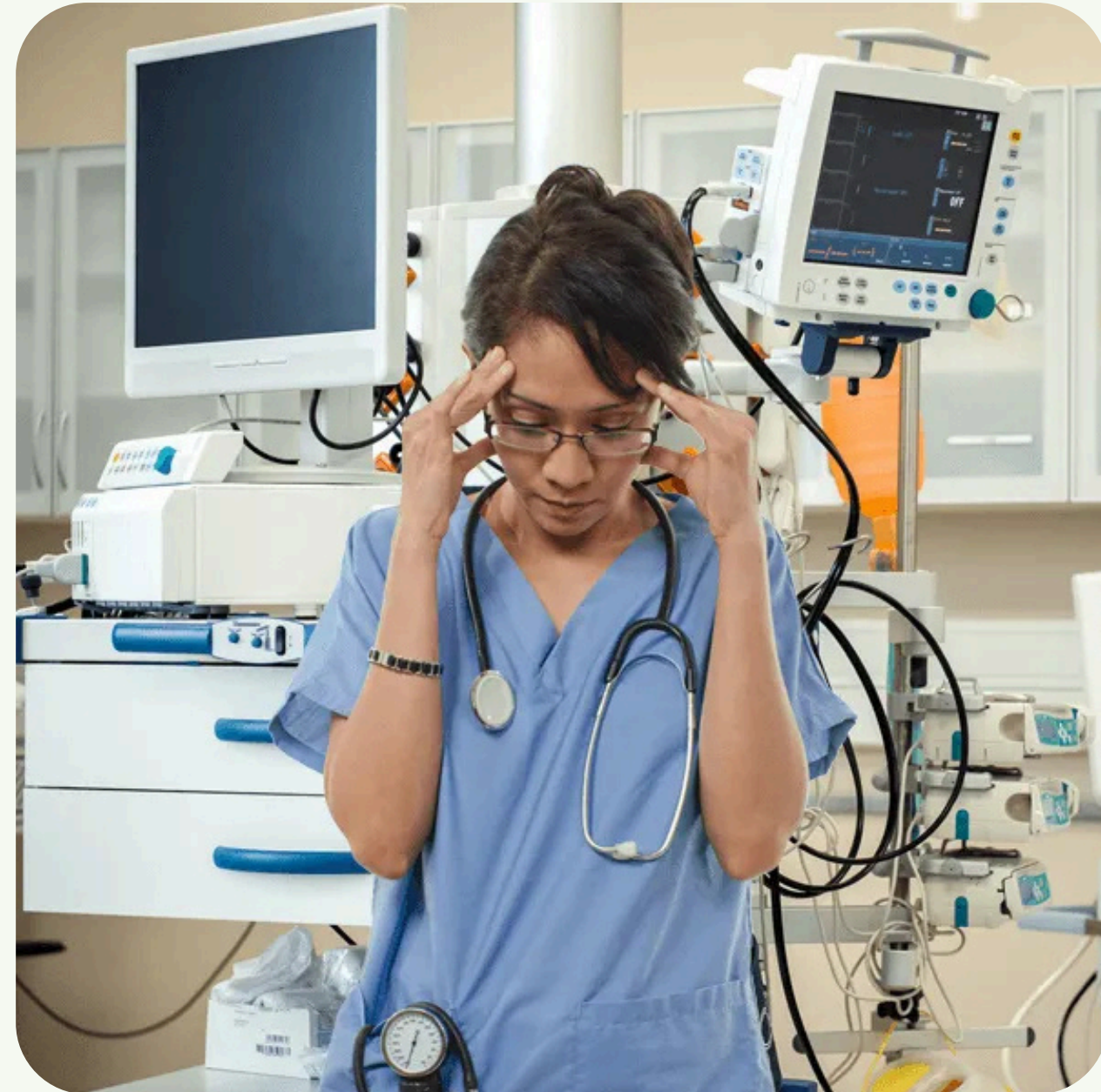
Effect of Sound on Patient Wellness



1. DanDanDann, "First baby, first NICU experience, and I am so scared.," Reddit Post, R/NICUParents, July 10, 2023, https://www.reddit.com/r/NICUParents/comments/14vgxx7/first_baby_first_nicu_experience_and_i_am_so/.

Alarm Fatigue

“Of all patient monitoring alarms, 72% to 99% are either technically false or clinically irrelevant, i.e. technically true but not actionable”



“Alarm Fatigue ... Don't Get Caught Being Silent.” August 31, 2022.
<https://www.hceglobe.org/alarm-fatigue>.

Issues to Solve

1. Fine tune monitoring equipment to meet patient needs
2. Provide nurses with remote access to live patient monitoring data
3. Reduce sonic disturbances while communicating valuable data of accurate alarms.

My Idea

A personalized lightweight wearable device that alerts nurses of alarms directly



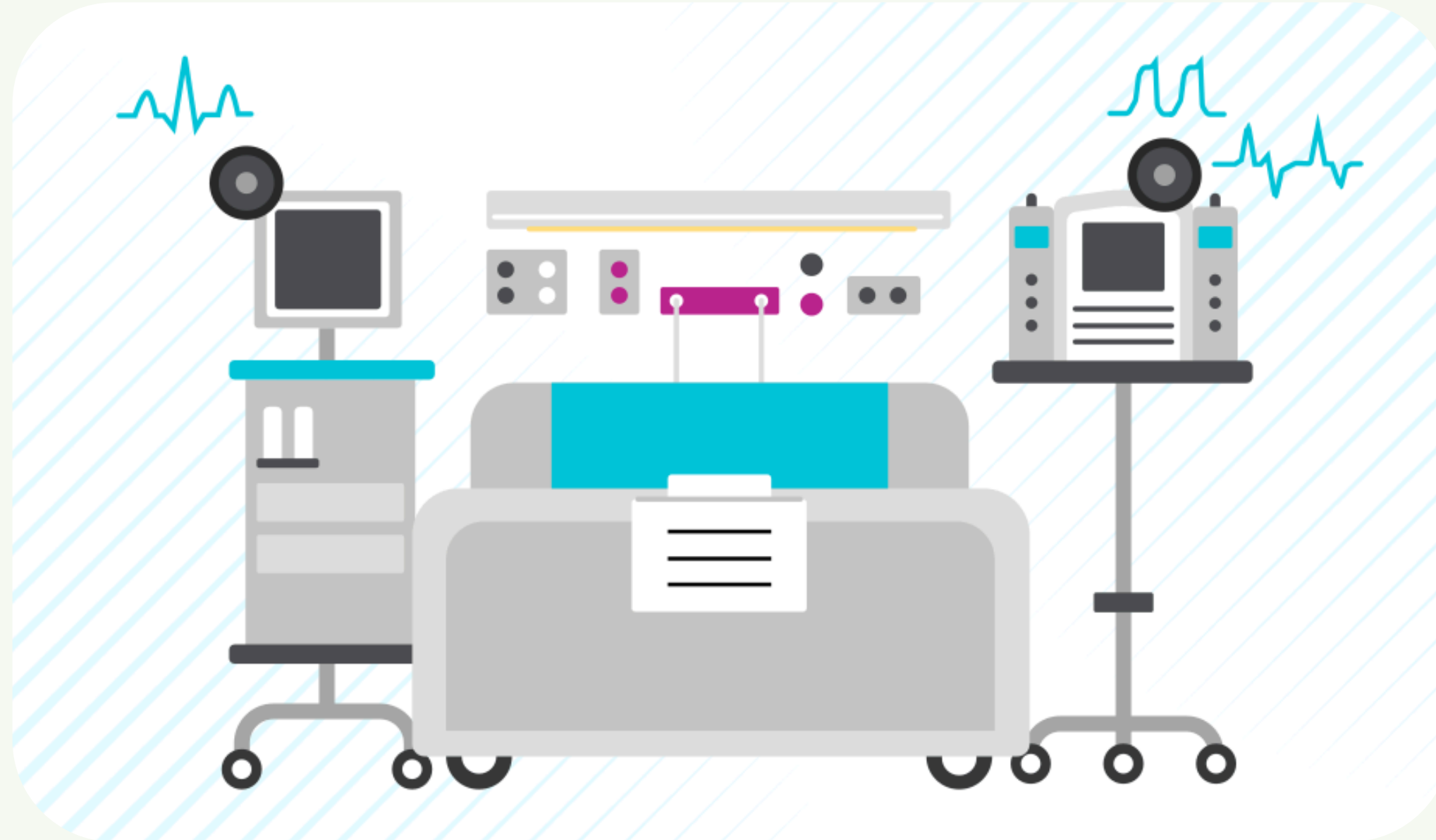
My Prototype



Why does this product not exist?

- Liability Issues
- Overcomplicated Devices
- Alarm Fatigue

IEC 60601-1-8

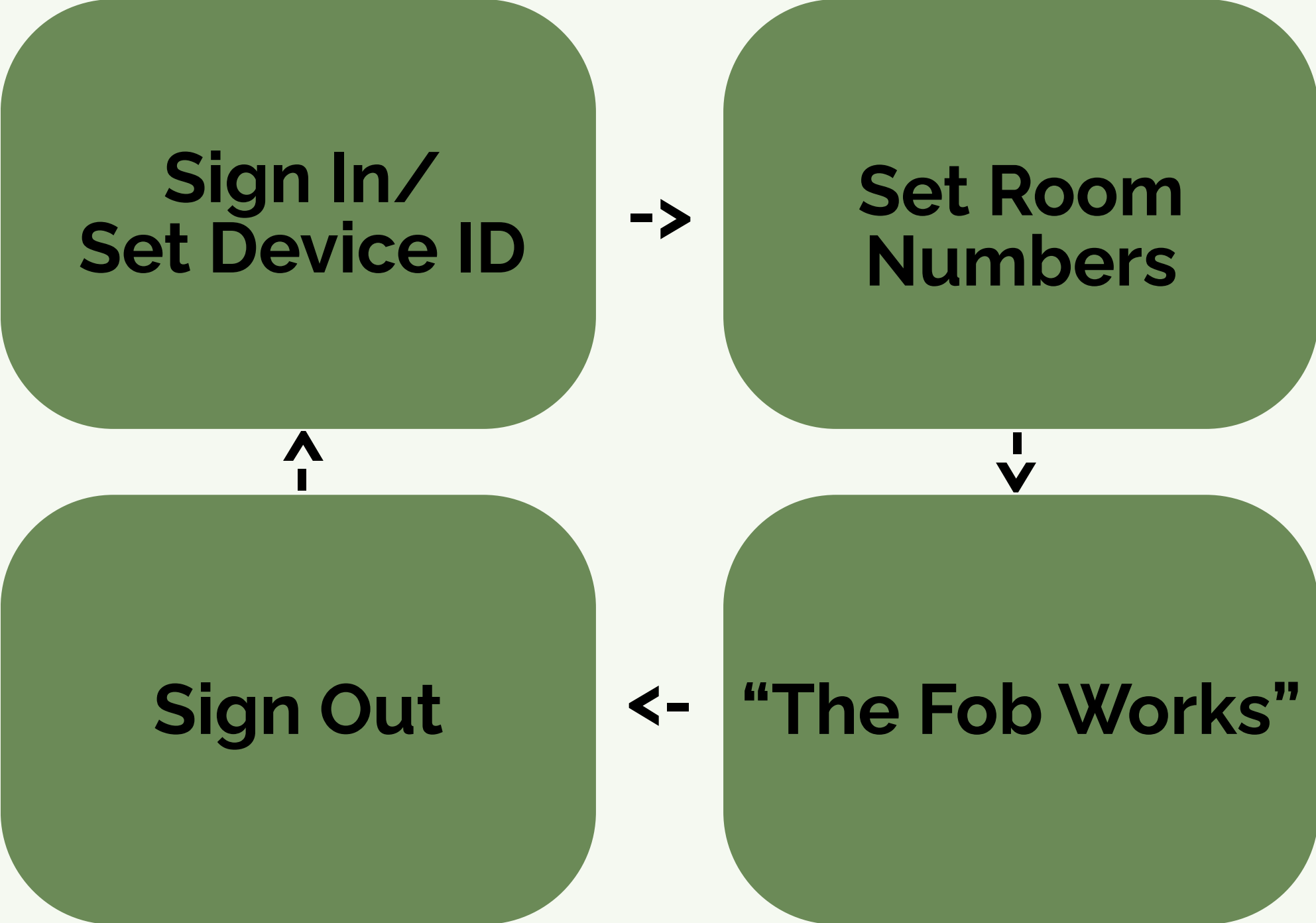


Same Sky. "A Guide to IEC 60601-1-8 and Medical Alarm Systems." September 29, 2023. <https://www.sameskydevices.com/blog/a-guide-to-iec-60601-1-8-and-medical-alarm-systems>.

Why would mine be different?

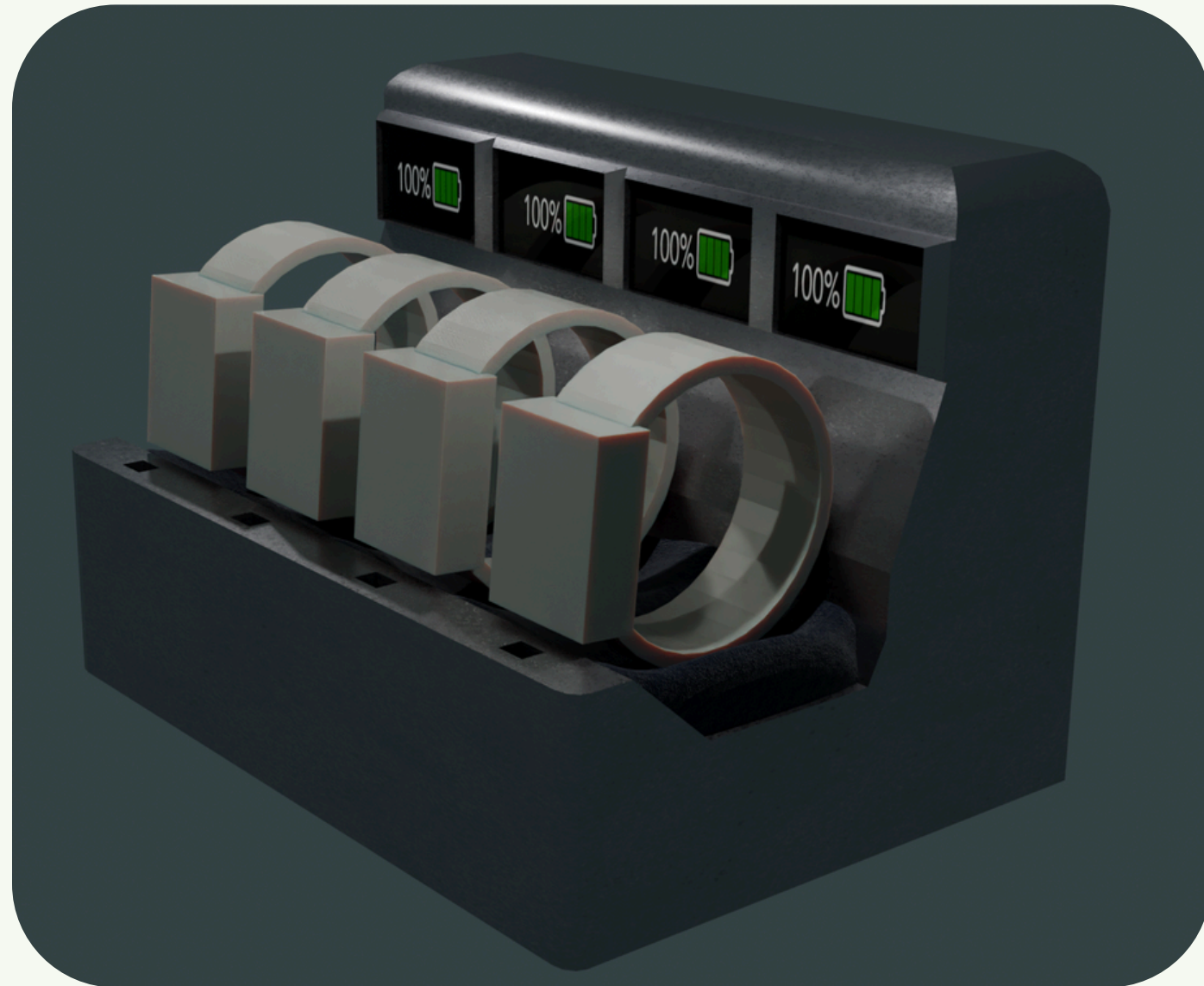
- Working with manufacturers
- Bringing the status quo to the modern era
- Sonic alarms as a last resort

Design Considerations of a Complex Medical System



The Case

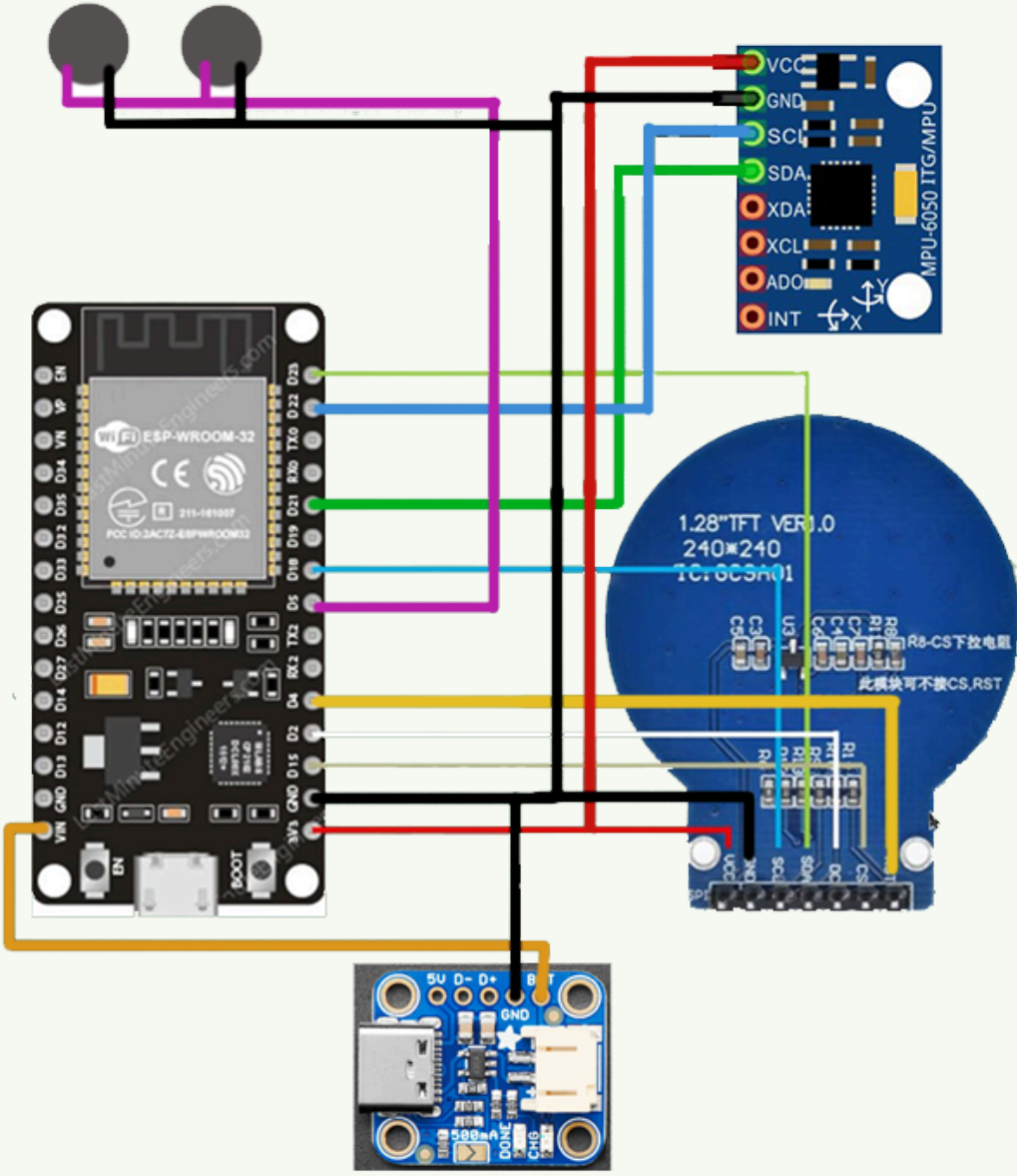
First POC



Current Prototype



The Hardware

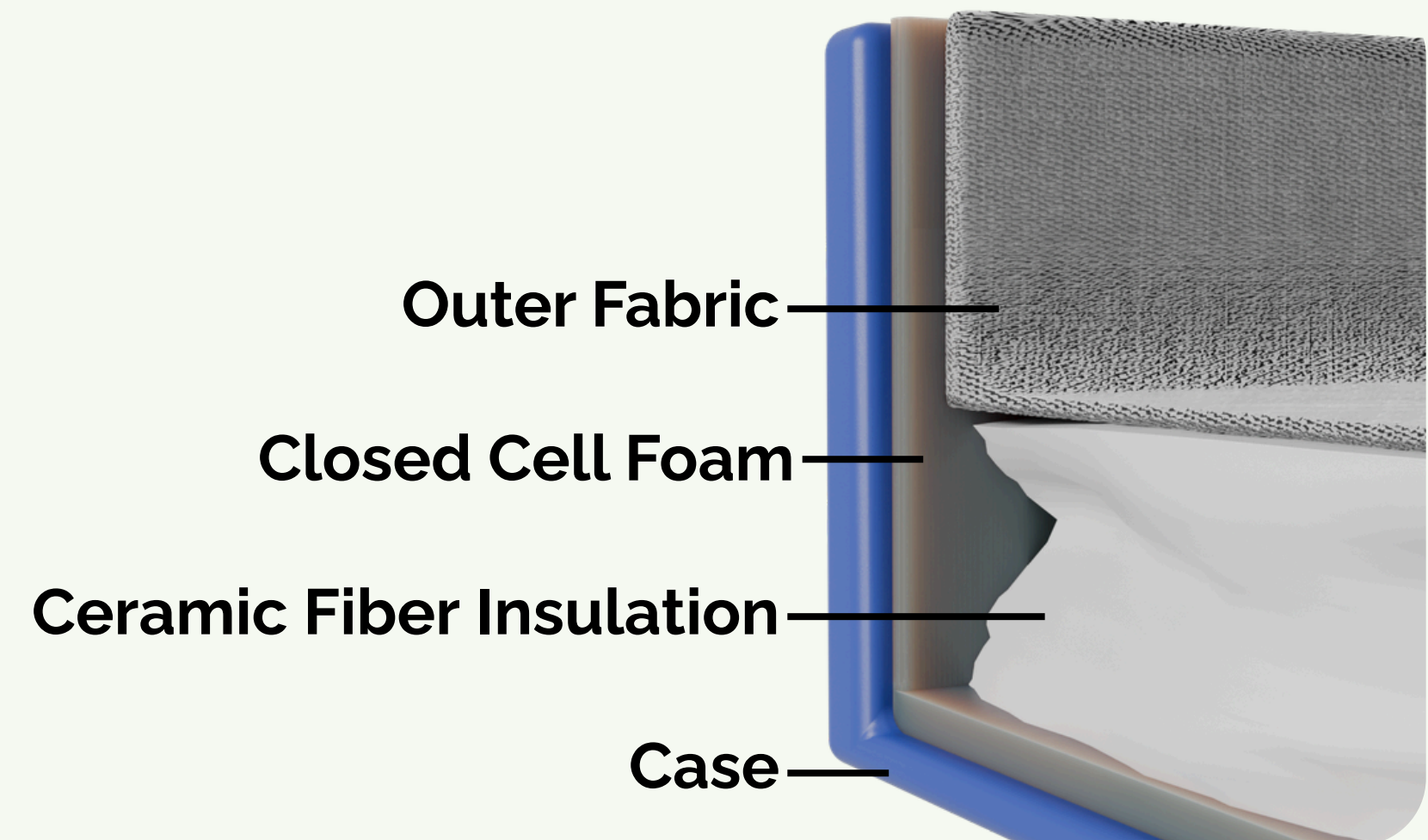
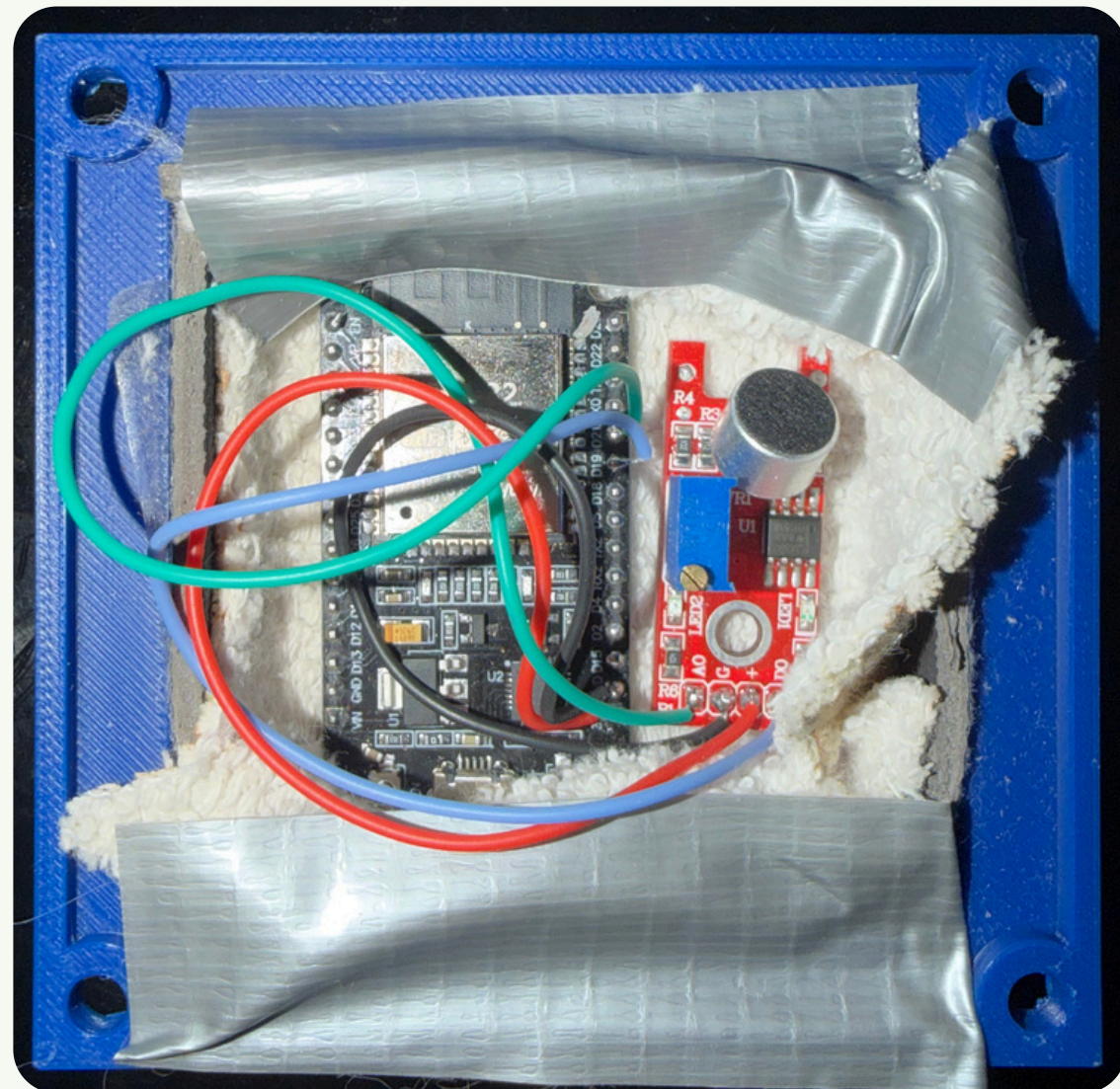


Video of Gyroscope

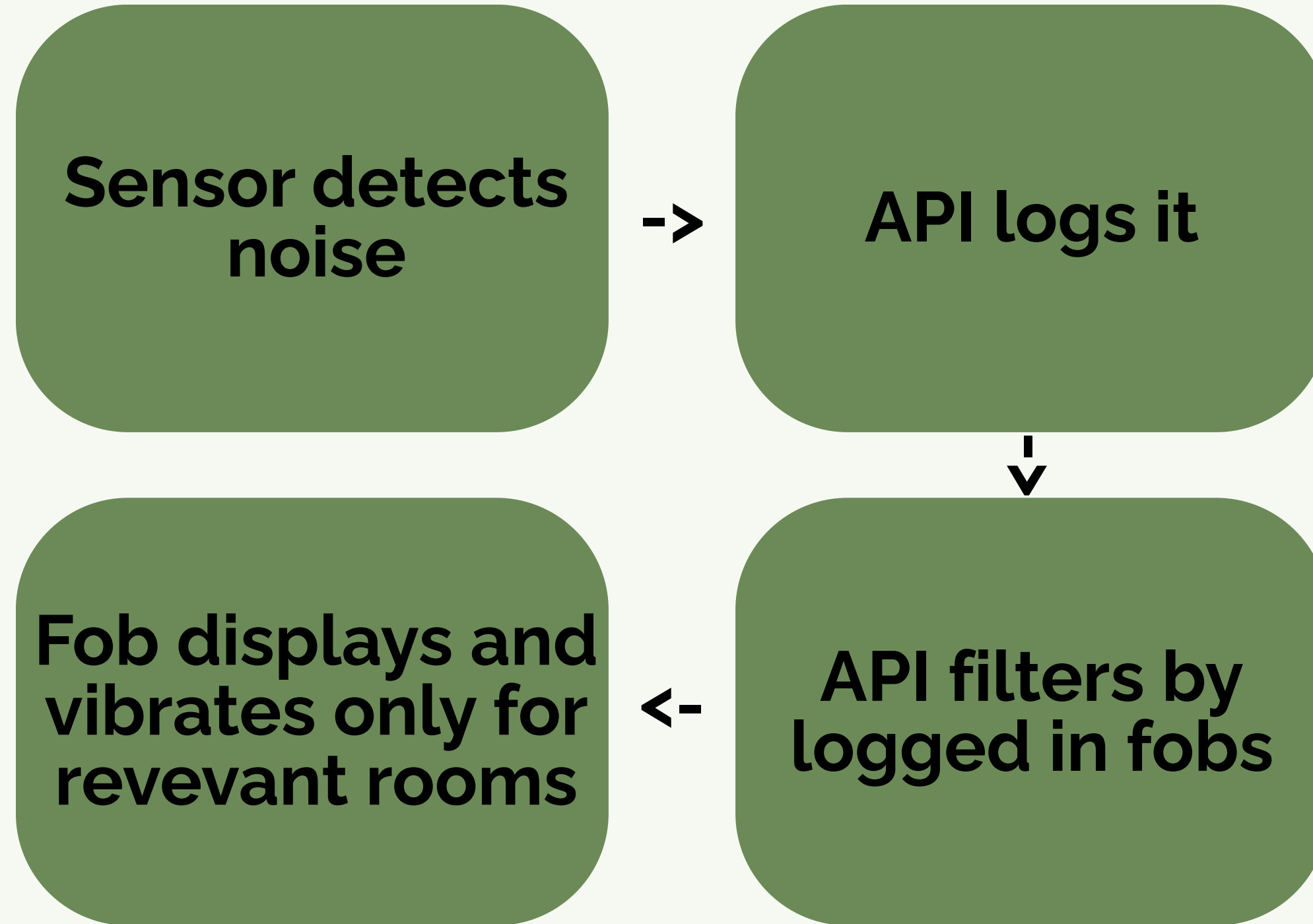


Listener Devices

Layers of Soundproofing:




Software



Device Demo



Website



NURSE STATION

Sign In

Secure access to room assignment controls.

DEVICE ID

USERNAME


PASSWORD

Assign Rooms

ROOMS (COMMA SEPARATED)

Login successful

Website Demo



NURSE STATION

Sign In

Secure access to room assignment controls.

DEVICE ID

USERNAME

PASSWORD

Database

Users table

**Room
Assignment
table**

**NoiseLogs
table**

**FobSession
table**

Results, Challenges, Whats next?

- Custom circuit boards
- Silicone enclosures
- Connecting to real medical APIs

Thank You!

Bibliography

admin. "Medical Grade Silicone: What Makes It Safe for the Medical Field?" Industry Trends. Official Apple Rubber Blog, October 6, 2020. <https://www.applerubber.com/blog/medical-grade-silicone-what-makes-it-safe-for-the-medical-field/>.

Almadhoob, Abdulraoof, and Arne Ohlsson. "Sound Reduction Management in the Neonatal Intensive Care Unit for Preterm or Very Low Birth Weight Infants." The Cochrane Database of Systematic Reviews 1 (January 2015): CD010333. <https://doi.org/10.1002/14651858.CD010333.pub2>.

Bani Hani, Salam, and Emran A. Abu Aqoulah. "Relationship Between Alarm Fatigue and Stress Among Acute Care Nurses: A Cross-Sectional Study." SAGE Open Nursing 10 (2024): 23779608241292584. <https://doi.org/10.1177/23779608241292584>.

Chromik, Jonas, Sophie Anne Ines Klopfenstein, Bjarne Pfitzner, et al. "Computational Approaches to Alleviate Alarm Fatigue in Intensive Care Medicine: A Systematic Literature Review." Frontiers in Digital Health 4 (2022): 843747. <https://doi.org/10.3389/fdgth.2022.843747>.

Gavin, Mary L., and MDThis link opens in a new tab. "When Your Baby's in the NICU." Accessed April 19, 2026. <https://kidshealth.org/en/parents/nicu-caring.html>.
KETV NewsWatch 7. NICU Noise. 2019. 01:37. <https://www.youtube.com/watch?v=BXypQ5QtKiE>.

Same Sky. "A Guide to IEC 60601-1-8 and Medical Alarm Systems." September 29, 2023. <https://www.sameskydevices.com/blog/a-guide-to-iec-60601-1-8-and-medical-alarm-systems>.

"The Neonatal Intensive Care Unit (NICU)." Accessed April 19, 2026. <https://www.stanfordchildrens.org/en/topic/default?id=the-neonatal-intensive-care-unit-nicu-90-P02389>.

Using Audible Alarms in Medical Equipment (IEC 60601-1-8) - Mallory. n.d. Accessed April 19, 2026. <https://mspindy.com/technical-articles/using-audible-alarms-in-medical-equipment-iec-60601-1-8/>.