

Multisensory Pre-Alarm System for Physicians



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Mystery Machine

Oral Report 4
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Problem Statement

- Distracting alarms and sounds in Intensive Care Units
- Leads to patient and physician fatigue
- No differentiation between different parameters



Needs Assessment

- **UX**
- Patient Efficacy
- Safety
- Hospital System Efficiency
- **Technical Needs**



Needs Assessment

- UX

- P

- S

- H

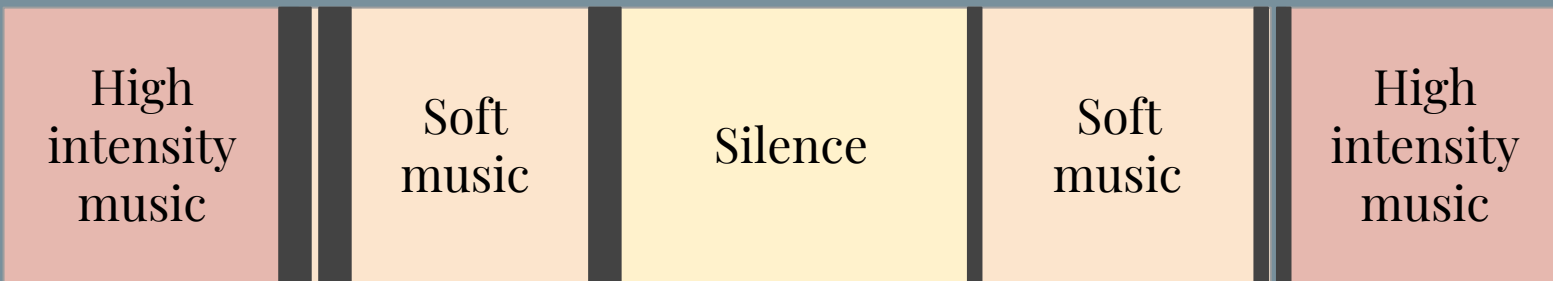
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Haptic pulses



ALARM



ALARM

Concerning

Abnormal

Normal

Abnormal

Concerning

*Discrete Haptics

Updates

- 1) New sounds
- 2) Sound Blocks
- 3) Phase 1 Planning

Iteration 3 of Sounds



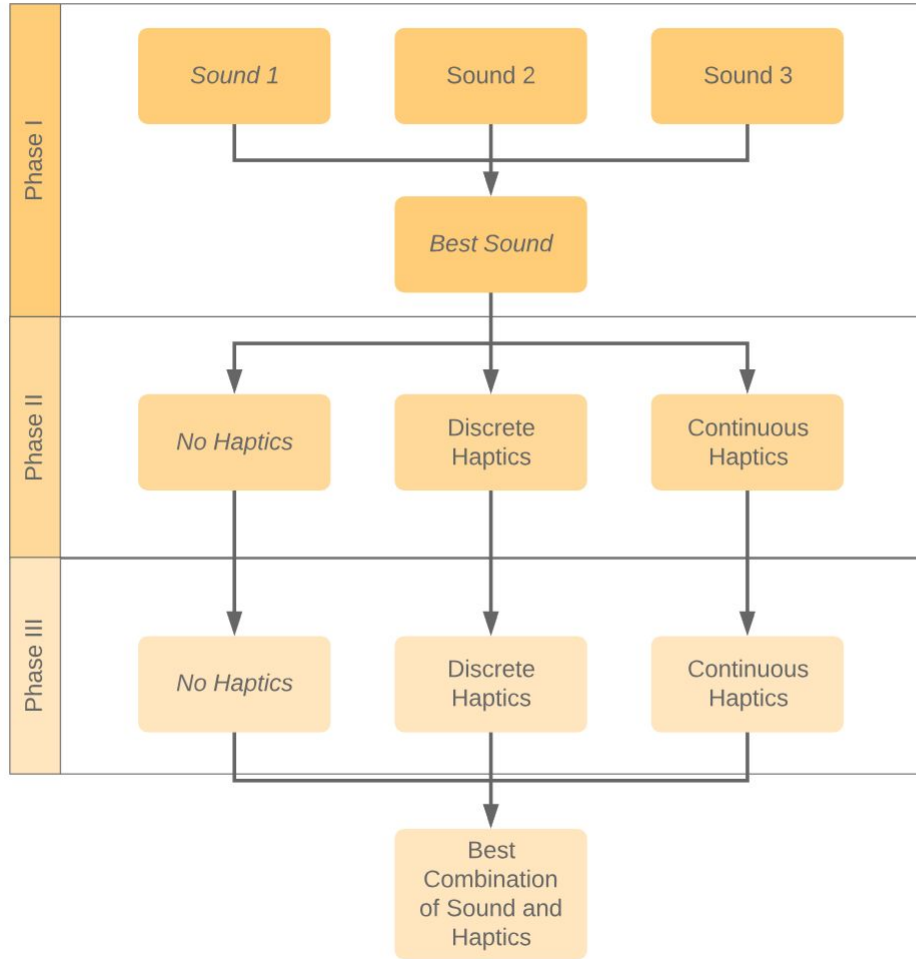
Sound Iterations

Iteration 1

Iteration 2

Iteration 3

Study: Phase 1



Study Plan: Action Items

Accuracy

Response
Time

Comfort

Discernibility

Phase I:
Sounds



Best Sound

Phase 1.1: Differentiation

Tap the button for the variable represented by the sound played:

**HEART
RATE**

**BLOOD
PRESSURE**

**BLOOD
OXYGENATION**

Phase 1.2: Directions

Select the button to indicate which direction the variable is going in.

Higher
Heart
Rate

Higher
Blood
Pressure

Higher Blood
Oxygenation

Lower
Heart
Rate

Lower
Blood
Pressure

Lower Blood
Oxygenation

Phase 1.3: Combination of Sounds



Data to be collected:

Response Time

Accuracy

- Parameter
- Level

Phase I Overview

Repeat for
Iterations 2
and 3

Overview of Project

Pre-survey

Introduce and test Iteration 1

1.1: Sound Differentiation

- Play sound and associated variables
- Test user

1.2: Sound Direction

- Introduce direction changes of each sound
- Test user

1.3: Combine Sounds

- Introduce block
- Give user full test

Qualitative Survey

Next Steps

- Finish MATLAB test scripts for Phase 1 study
- Make progress on MATLAB test scripts for second and third studies
- Finalize surveys
- Recruitment for 2/18
 - Schedules
 - Spaces
 - Compensation
- IRB
 - Amendment
 - Consent forms
- Basslets

Questions/Interactive Portion!

