Rhythmics Co.

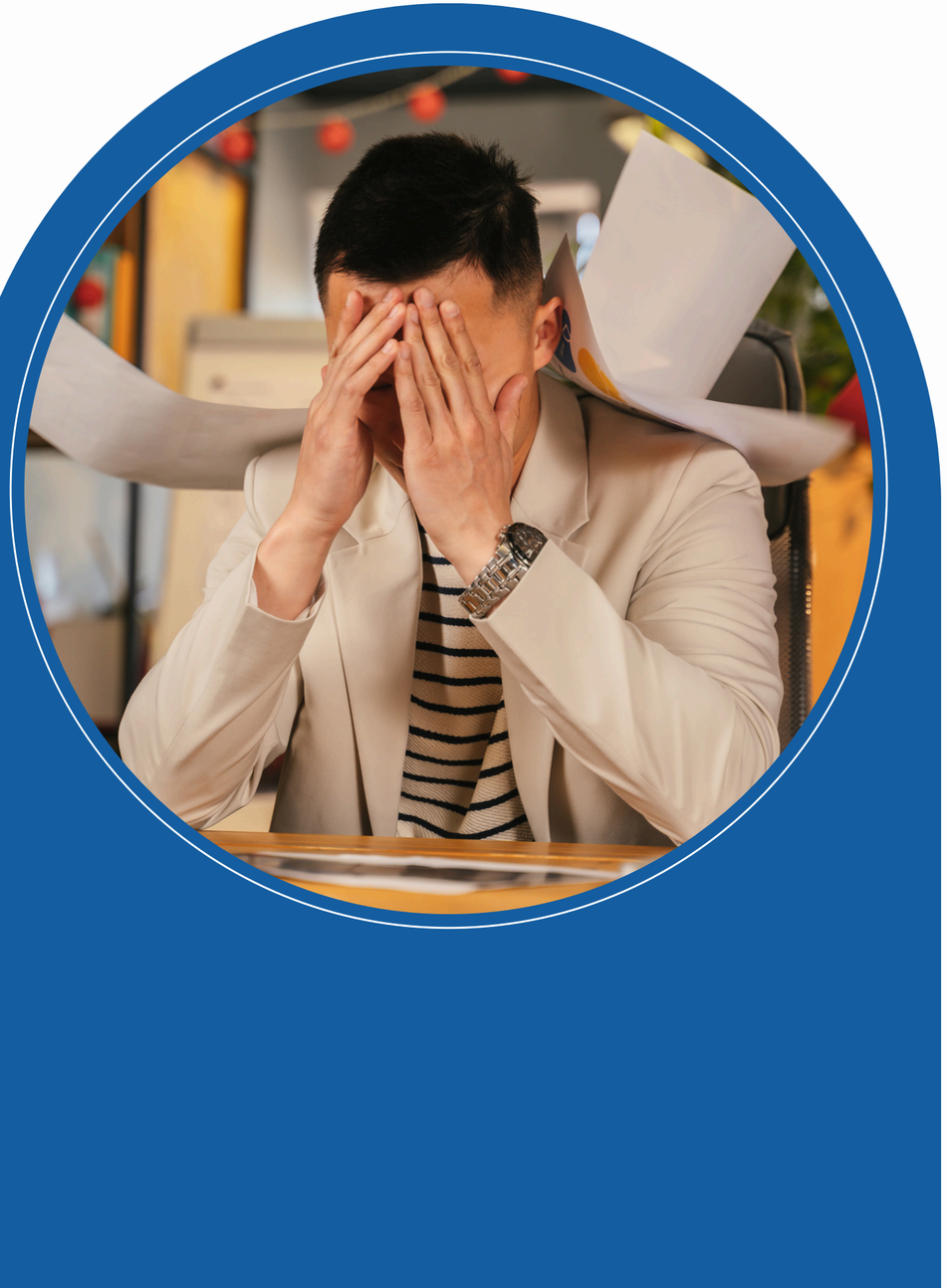
Rhythmics: A Stress Relief App

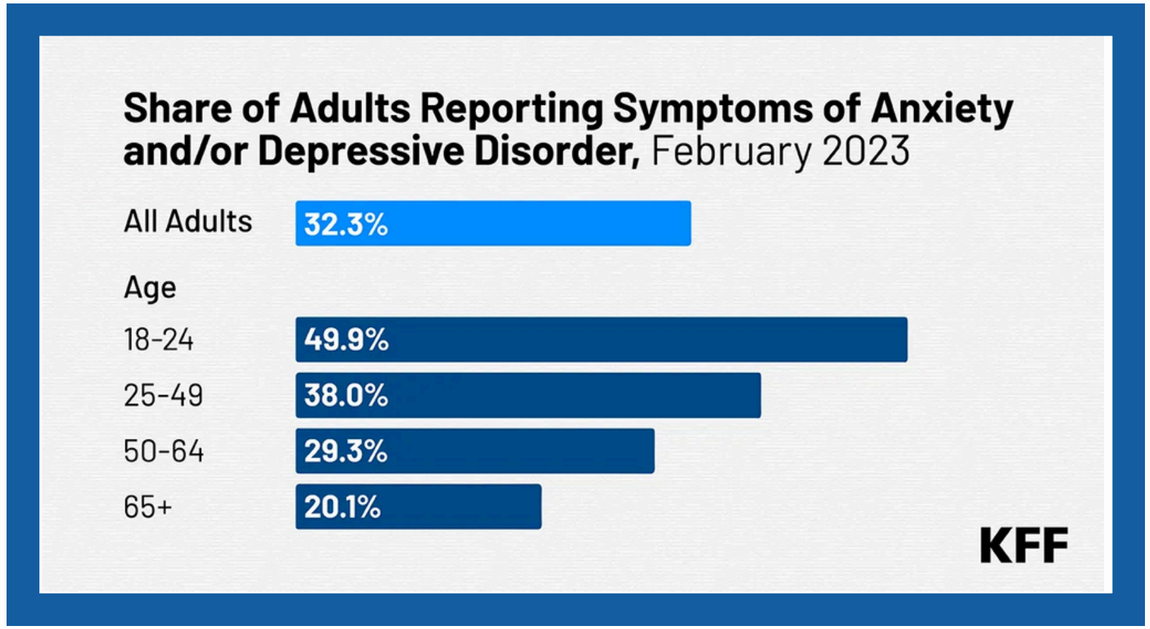
By: BME 261L Group 3

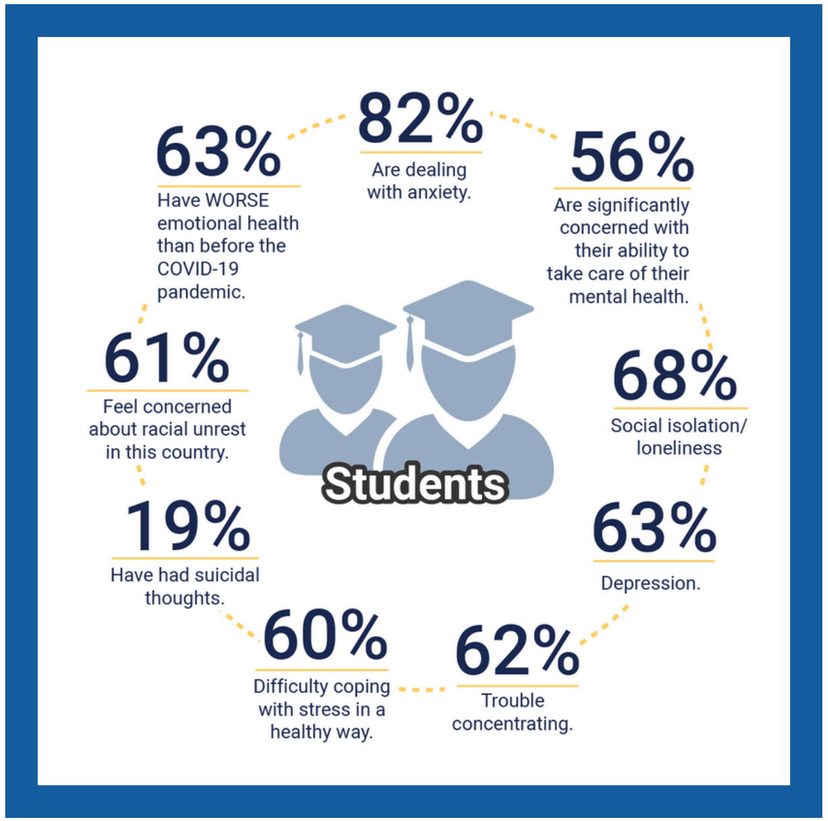
SAM GOLDBERG, NICOLAI ANG, TAYLOR WHITE, SID SAHA, GRACE WELCH

Anxiety

- World’s most common disorder, affecting 301 million people in 2023
- 2x as likely to suffer from anxiety than depression
- ~ 1 in 4 people receive treatment







https://www.kff.org/mental-health/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/

https://www.commandeducation.com/mental-health-resources/

Current Solutions

Solution 01

Solution 02

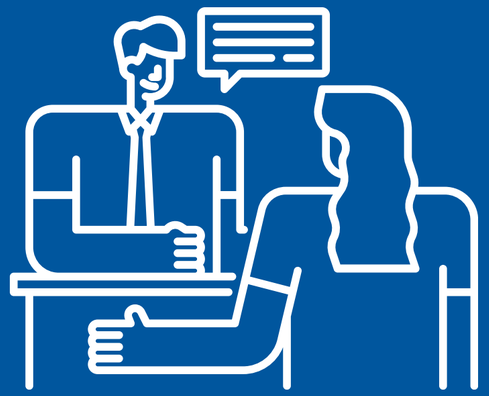
Solution 03

Medication

Selective Serotonin Reuptake Inhibitors (SSRIs)

Current Solutions

Solution 01



Solution 02

Counseling

Solution 03

Current Solutions

Solution 01

Spiritune

Solution 02

Tide

Headspace

Solution 03

Relaxation Applications

Our Mission

Provide an accessible and effective means to induce relaxation, reduce heart rate abormality and contribute to optimal mental and physical functioning

Reduce

Objective 01

Relax

Objective 02

Restore

Objective 03

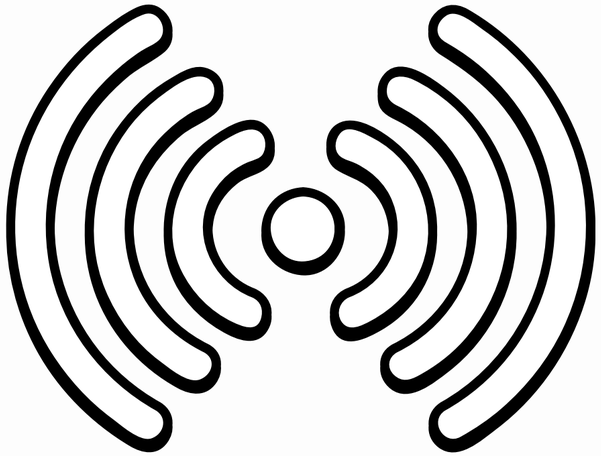
Proposed Solution

PPG Measurements

This includes heart rate and heart rate variability (HRV)

Music Response

Spotify API



Haptic Device

Stimulation of Nervous System

Major Customer Needs

Contains 20 Customer Needs In Total

01 Real-time PPG Data Analysis

02 User-Friendly Interface

03 Seamless Bluetooth Connectivity

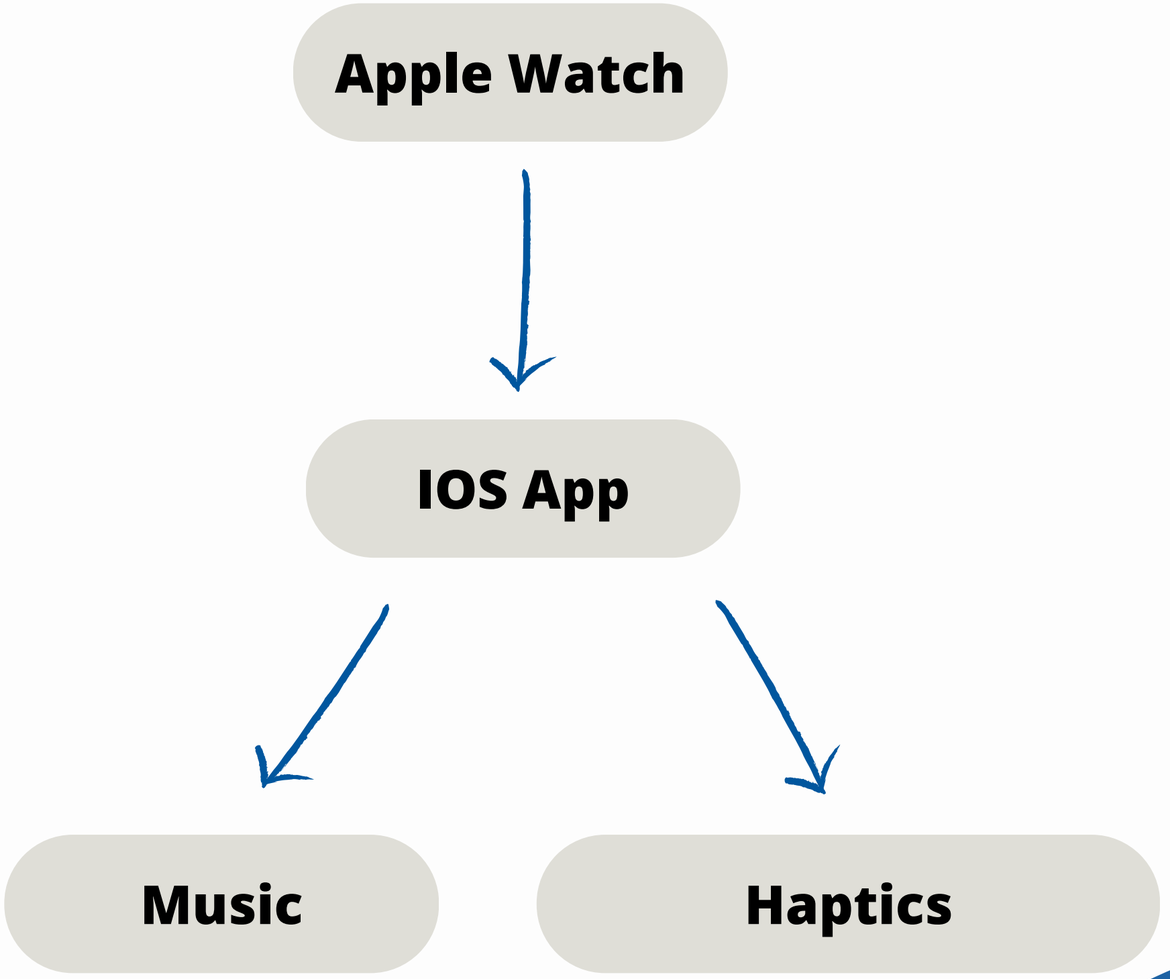
04 Effective Prompt Response to Elevated Heart Rate

05 Compact & Portable Design

Software

Back End Component Design

- Apple Watch HealthKit API
- iOS App

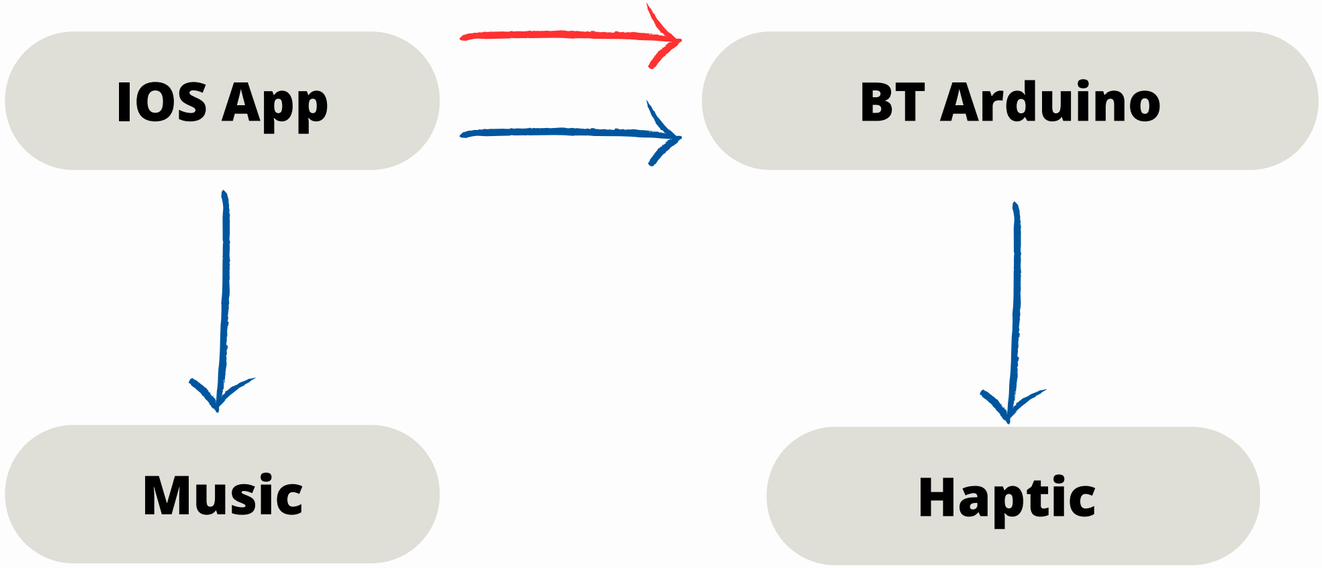


#1 Real-time PPG Data Analysis

Software

Back End Component Design

- Arduino BT -> Haptic
- Spotify Integration API



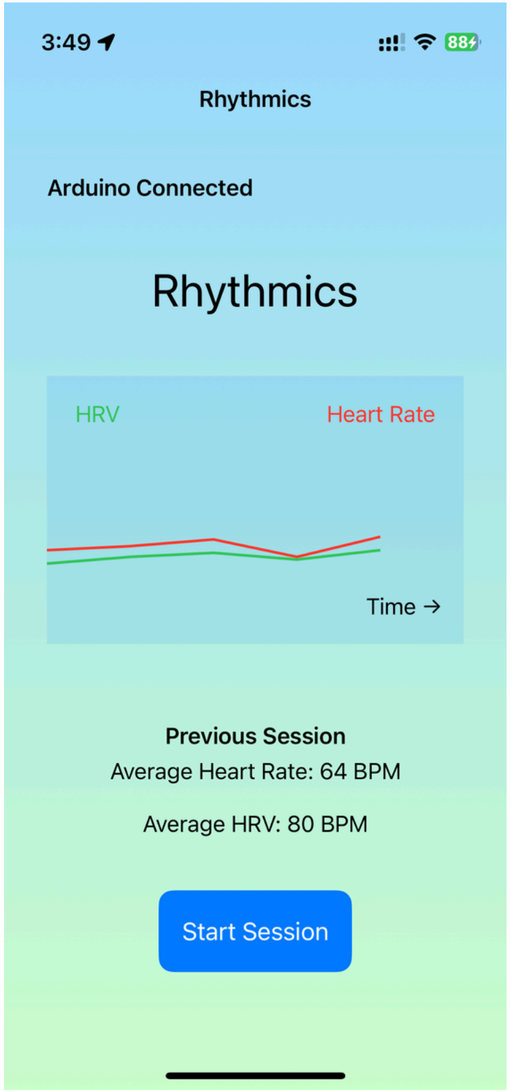
#3 Seamless Bluetooth Connectivity

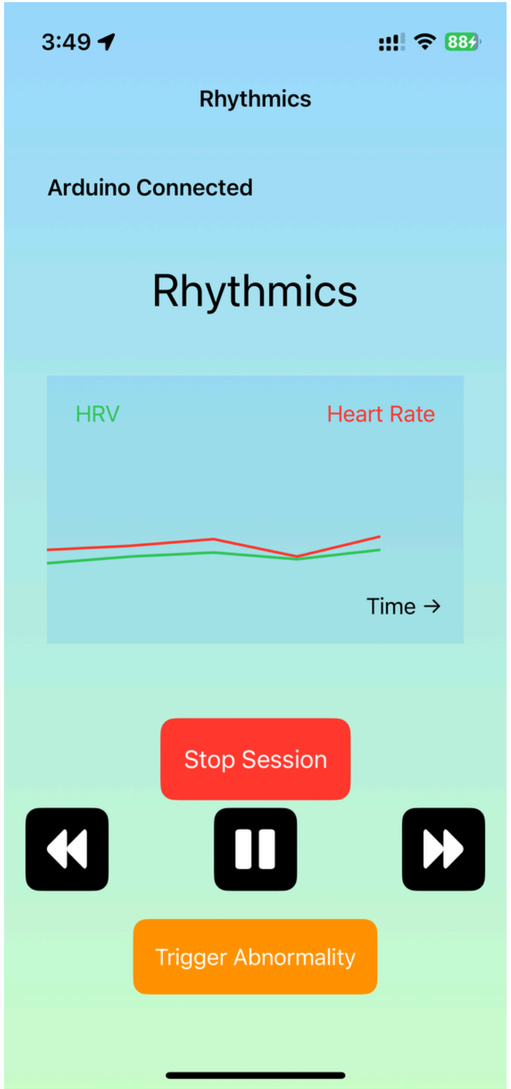
#4 Effective Prompt Response to Elevated Heart Rate

User Interface

Front End Design Principles

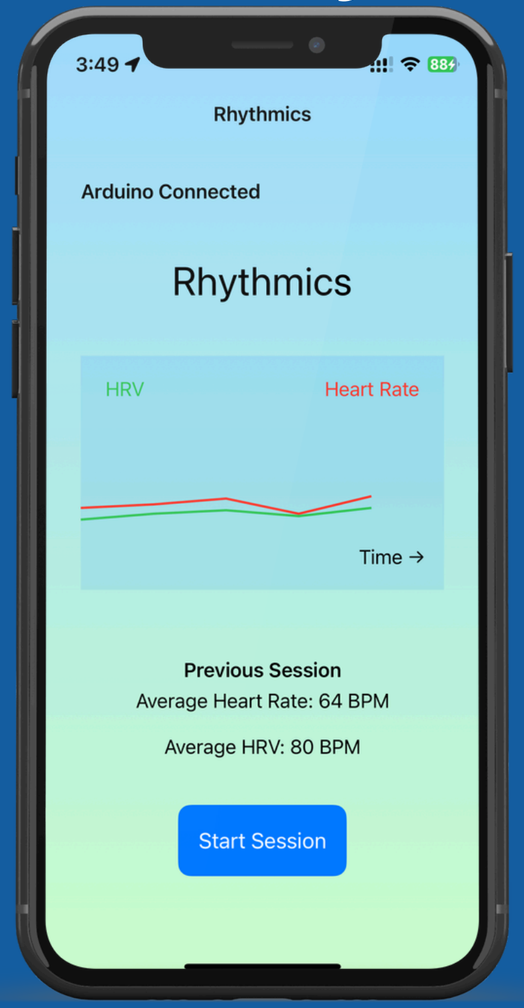
- Consistency
- Simplicity
- Accessibility





#2 User-Friendly Interface

UI Primary Features
#2 User-Friendly Interface



01 Data Visualization

02 Interactive Elements

03 Color Scheme

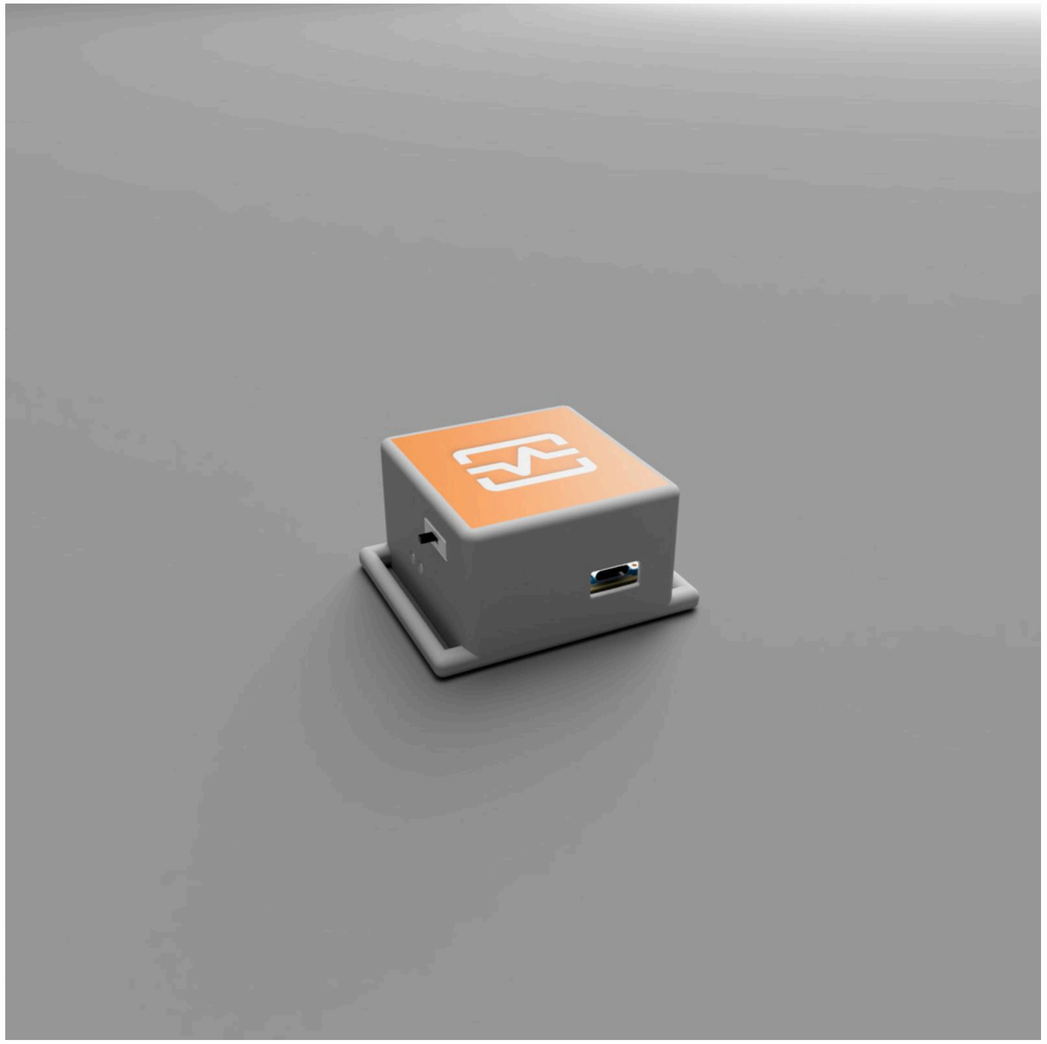
04 Layout and Navigation

#4 Effective Prompt Response to Elevated Heart Rate

Hardware

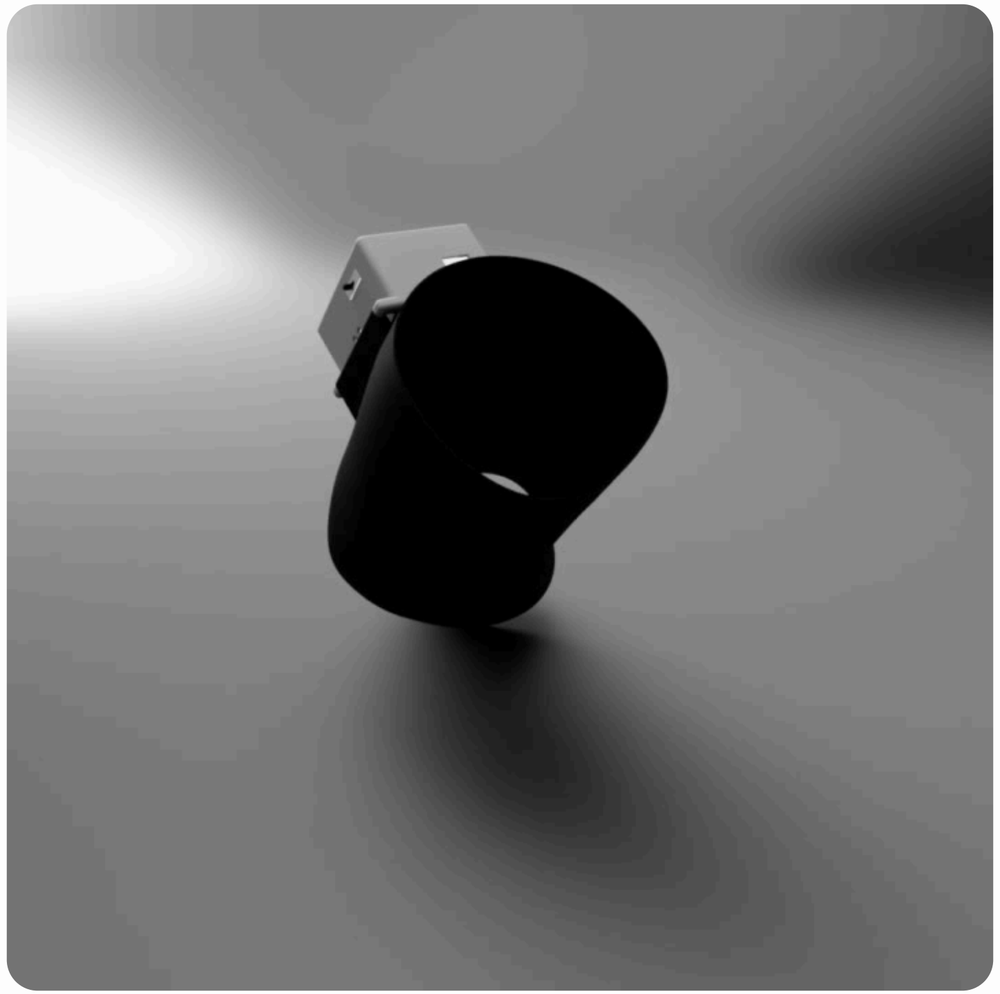
Fabrication & Implementation

- 3D Printed PLA Casing
  - Microcontroller
  - Li-Ion Battery
  - Battery Charging Module
  - Haptics Motor Driver
- Integrated w/Armband



#5 Compact & Portable Design

Final Product



Cost Analysis

Hardware

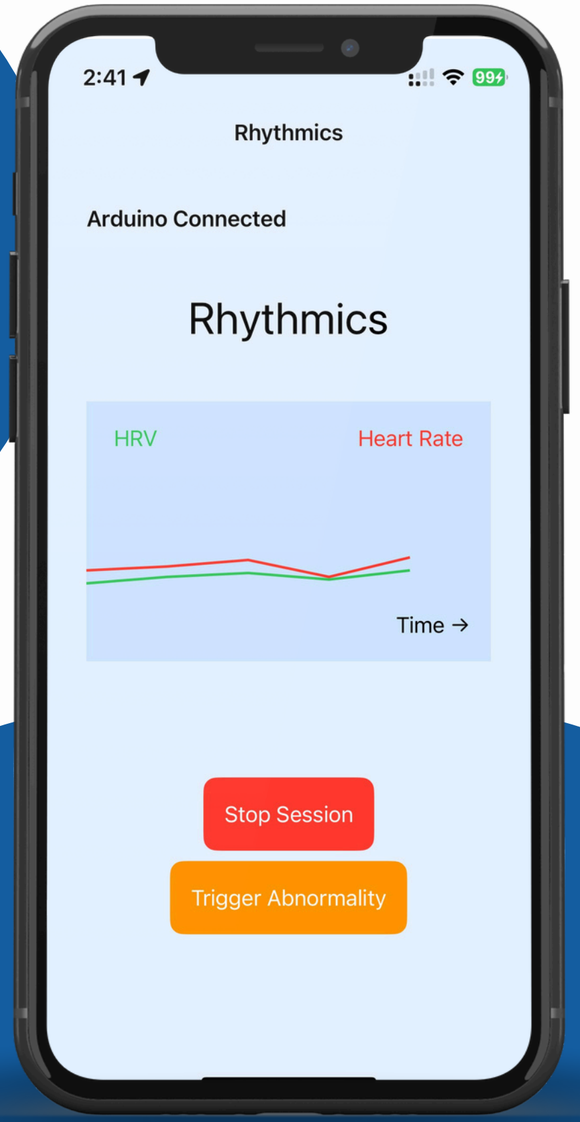
- Arduino Nano 33 IoT
- Forearm Band
- Haptic Driver + Motor
- Lithium Battery
- Lithium Battery Charger
- Custom PCB

$ 45.08

Total

Under $100 limit

$ 45.08

PRODUCT DEMO

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