

# **HealthVis: Making Personal Health Visualizations Accessible for Blind and Low- Vision People**

Team members: Emily Aymond, Madeline Davis, Jaimie Morris

Faculty mentors: Professor Faust, Professor Hassan

# Overview of the Problem

- Tracking personal health is increasingly popular
- 1 in 5 Americans use a fitness tracker or mobile device for tracking purposes
- Technologies rely on graphical interfaces and are vision-dependent
- Six million Americans have low vision and one million are blind, making this virtual data inaccessible
- BLV people report that current technology is suboptimal and tedious

# Proposed approach

- Our project aims to create an app/website that allows BLV people to independently access and record personal health data.
- Accessibility Features:
  - Keyboard/ clicked based navigation
  - Sonification
  - AI-generated summaries
  - User can select font, font size, and color

# Relevant Work

- CharA11y
  - Tactile-first plots
  - Useful as a model for accessibility visualization
- MAIDR
  - Statistical plots for BLV people
  - Useful for modeling implementation in the user interface

# Novelty

- Existing platforms with similar implementations
  - Ex. Health App, Levels, etc.
- Novelty comes from accessibility of the platform
  - Sonification of Data
  - User choice of font, colors, etc.
  - ARIA labels for compatibility with assistive tools

# Feasibility

- Feasible because models already exist
- Working to make them accessible
- Issues we might encounter:
  - AI Integration and health data ethical concerns
  - Unknown territory surrounding sonification, ARIA labels, etc.
  - Accessibility of certain data types in implementation

# Positioning

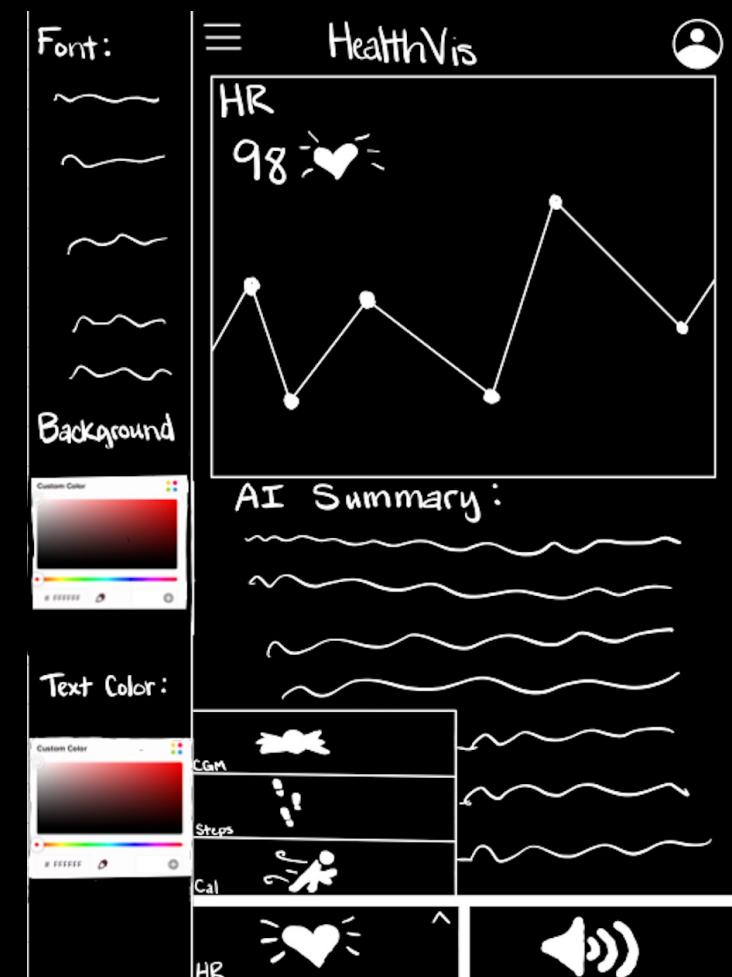
- Current solutions work but are not very accessible
  - Most other platforms do not work with screen readers etc.
- Our approach:
  - accessibility for all users through choice of fonts and colors
  - compatibility with screen readers through ARIA Labels
  - Interaction through many different sources (sonification, keyboard navigation, screen readers, etc.)

# Work Conducted So Far

- Research on accessibility needs as well as compatibility with assistive devices
- Literature review on accessibility within technology
- Development of a user interface
- Finding datasets that we can use as placeholders while in development

# Mockup of Our Website

- Sonification for screen elements
- Visualization of the data
- Drop down menu to choose what data to visualize
- AI summary to explain trends in data
- Settings for user choice of font, text color, and background color



# Timeline for Capstone

## 1<sup>st</sup> Phase:

- Set up the UI
- Placeholder for visualization and chatbot

## 2<sup>nd</sup> Phase:

- Automation and integration with data sources
- Integration with AI/GPT

## 3<sup>rd</sup> Phase:

- Implement accessibility visualization

## 4<sup>th</sup> Phase:

- Refine and get ready for presentation