# Audio-based Fitness Tracking

Team Jonathan: Michelle, Joe, Jen

## **About Jonathan**



- Legally blind for his entire life
- Held various careers including lobbyist for people with disabilities
- Worked with AT projects before
- Active physical life

# An active physical life







# Jonathan's request

Assistive technology that...

### 1. Reports data during a workout

- Distance
- Steps
- Heart rate

#### 2. Tracks information regardless of location

- Indoors  $\rightarrow$  treadmill
- Outdoors  $\rightarrow$  track

#### 3. Provides access to data post-workout

- Mobile
- Desktop

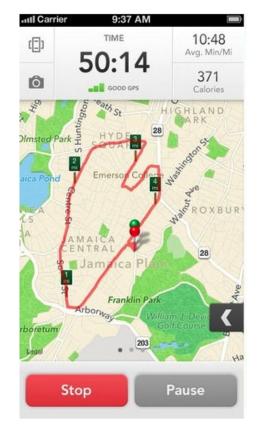
# **Performance Metrics**

- 1. Access to Metrics While Exercising
- 2. Access to Metrics from Past Workouts
- 3. Efficiency
- 4. Satisfaction
- 5. Comfort Level

# Research: Existing Fitness Tech







## Our solution: iPhone + heart rate monitor

Accessibility VoiceOver					
VoiceOver					
<ul> <li>VoiceOver speaks items on the screen:</li> <li>Tap once to select an item</li> <li>Double-Tap to activate the selected item</li> <li>Swipe three fingers to scroll</li> </ul>					
VoiceOver Practice					
Speak Hints					
Speaking Rate					
*	*				



# Phase 1: 3 "Paper" Prototypes



## 3 Different Focuses

- Efficiency
- Learnability
- Satisfaction
- We imitated iOS Voice Over

## Be consistent and verbose.

- Consistency is key
- More > Less
- Audibly confirm actions

# Phase 2: Barebones iPhone app

- 3 Main Options
- High fidelity with basic functionality
- No persistent data

Configure a New Workout Use Last Workout Configuration Review Previous Workouts

Jonathan's Fitness App

## Phase 2: Lessons learned

- External Consistency
- Make sure mental model is the same as actual app

Select Time Inte	rvals for A Next		
		Carrier 🗢	8:43 AM 🗩
No ti	me		
30 sec 1 min	iute		Resume
			Hear Stats
			End Workout

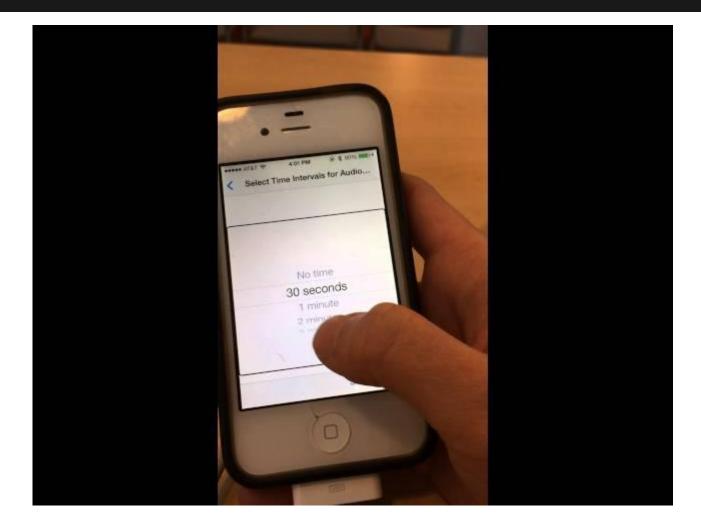
# Phase 3: Functional Prototype

## • Integrating functionality

- $\circ$  connecting to heart rate monitor
- saving/fetching data

- Improving the user experience
  - adding confirmations
  - display vs. speech

# Demo: Configure a new workout



# Demo: Use last workout configuration

٢	Use Last Workout Configuration	I,
ł	Audio metrics on: time elaps	
	Time interval: 30 seco	
	1	

# Demo: Review previous workouts

ASAM       ASAM         Back       Workout Summary         Date:       12/03/13         Time:       00:00:04         Average heart rate:       66 bpm	Back Workout Summary Date: 12/03/13 Time: 00:00:04		1
Time: 00:00:04	Time: 00:00:04	A PART A	
		Date: 12/03/13	
Average heart rate: oo opan	Average heart rate: oo opin		
		Average heart rate: oo opin	

## **Performance Metrics - Evaluation**

1. Access to metrics while exercising	<ul> <li>On demand</li> <li>Automatically at a range of intervals</li> </ul>
2. Access to metrics from past workouts	<ul> <li>By date, metric</li> <li>Averages across ranges of time</li> </ul>
3. Efficiency	<ul> <li>"Use last workout configuration" option</li> </ul>
4. Satisfaction	<ul> <li>Time, heart rate, calories burned</li> <li>Highly configurable</li> </ul>
5. Comfort level	Bluetooth connection

## **Team Roles**

# **Joe** - Storyboard/Retroactive Retrieval Rockstar

## Michelle - Accessibility/Wahoo Wizard

## Jen - Core Data/Configuration Queen

# **Next Steps**

- Submit to App Store
- Integrate with phone GPS
- Integrate with pedometer/distance tracker
- Setup Desktop access



# Thanks!

Contact us @mit.edu

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# Phase 2: iOS Storyboard

