CS 410
Introduction to Software Engineering

Tyme Wear Project Outline

TYMEwear
Introductions
Virtual coaching powered by smart clothing technology.
THE SMART SHIRT PERFORMANCE LAB INSIGHTS FROM SMART CLOTHING

Smart electronics
- Wireless communication
- 9 axis motion tracking
- Pace, Cadence, Movement Analysis

Soft sensing technology
- Seamless integration
- Breathing sensors
- Aerobic and Anaerobic Threshold
HOW IT WORKS: HOW A USER USES TYME WEAR

Threshold Test
App guided 10 min treadmill test

Personal Training Plan
Workouts personalized to your fitness level

Feedback & Coaching
Reach your goals faster
THRESHOLD TEST: PERFORMANCE LAB VS TYME WEAR

- **SPEED**: 8.2 MPH
- **PACE**: 7:38 MIN/MILE

**Performance Lab Data**

**Tyme Wear Data**

Private & Confidential
System Architecture

Sensors ➔ Electronics ➔ iOS App ➔ Back-End ➔ Front-End
System Architecture - Project focus
iOS App - Technologies

- XCode 10
- Objective-C and Swift
- BLE library
- PODS
  - AFNetwork
  - AWS
  - Chameleon
  - Charts
  - Cocoa
Back-End - Technologies

- AWS
- Django REST
- PostgreSQL
- Python
  - Numpy
  - Scipy
  - Proprietary signal processing algorithms
Front-End Technologies

- Django
- Bootstrap 4
  - HTML
  - CSS
  - JS
- ChartJS (To be migrated from Highcharts)
Project Goals

● Pipeline integration
  ○ App+Backend+Frontend

● Optimization
  ○ Data sending (iOS -> Backend)
  ○ AWS configuration (Alarms and load balancing)

● New features
  ○ UI/UX improvement
  ○ Algorithms implementation
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