Team 1: EdiFit Smart Shoe

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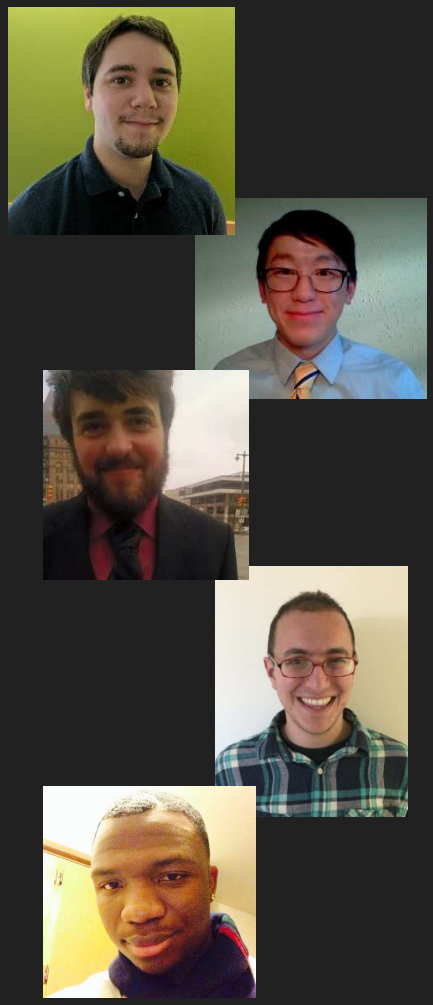

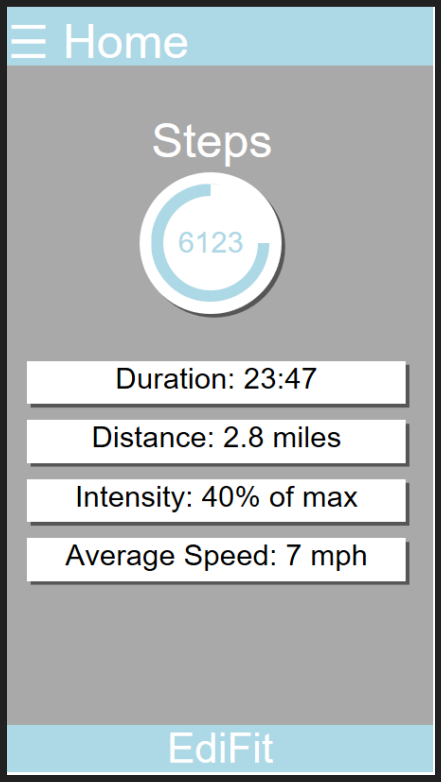

Image Source: http://www.kmart.com/everlast-reg-sport-men-s-louis-taupe-court-shoe-wide/p-035VA86741812P?plpSellerId=Kmart&prdNo=10&blockNo=10&blockType=G10#Imagezoom

EdiFit

Description

EdiFit is a smart shoe insert for accurate tracking of various workouts.

- Reads pressure pads and accelerometer to record accurate steps and intensity.
- Detects GPS location and heartrate.
- Sends data to smartphone through Bluetooth LE.

Designed for sale in the USA

Key Requirements

- Cost
  - Sales Price: $350, Component Cost: $200, Assembly & Test Costs: $50
- Environment
  - A wearable product for use indoors and outdoors in various weather conditions including rain.
  - Operating Temp Range: -20 °C 50°C
  - Operating Humidity Range: 0% to 100%
- Power Input(s)
  - Residential AC Power (charging): 102 – 132 VAC @ 0.5 Amps Max
  - Battery Power: Single 3.7V Li Ion battery
- Major Functions, Quantities Measured, Displayed
  - Functions: Charging, On, Off, Track data, Thermal throttled tracking.
  - Bluetooth LE communications
    - Min Outdoor Range: 10m
    - Data Rate: 5 kbps min
    - Operating Frequency: 2.4 Ghz
  - Quantities Displayed: Steps taken, Distance traveled, Heart rate, Relative intensity of steps.
  - Quantities Measured: Pressure exerted on shoe, CPU Temp, Acceleration, GPS location, Heart rate.
    - Pressure Range: 0 to 15kg (for on/off sensing), +/-1kg
    - CPU and Battery Temp Range: -20°C to 50°C, Accuracy: +/- 1°C
    - Acceleration: Direction and orientation. 16 bit resolution.
    - GPS Location: Accurate within 10 meters
    - Heart rate: Full range of human heart rates, Accuracy: +/- 5bpm

Block Diagram