

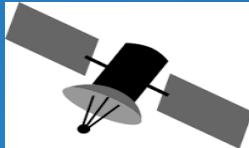
InPace

Team: Madison Rockwell, Hans Heidmann,
Sean Tranchetti, Calvin Hicks

Overview



InPace is an Arduino-based fitness wristband with an accompanying iOS app.



The user can go for a walk, run, bike ride, etc. and record both GPS coordinates and timestamps.

**Bluetooth™
4.0***

The recorded data can be sent via bluetooth (BLE 4.0) to the InPace iOS app, then visualized on a map or as an analytical graph



Methodologies

- Waterfall -> 2.5/5
 - We had to buy, assemble, then program the hardware before moving on to iOS development.
- Agile -> 4.5/5
 - After the first physical prototype was completed, we were all constantly working on different portions of the iOS app throughout the rest of the semester.

Tools We Used

5/5



2.5/5



5/5



4/5



5/5



5/5



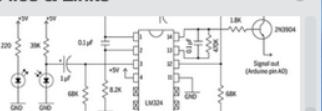
3/5

Trello Board

<https://trello.com/b/J25X5SX1/inpace>

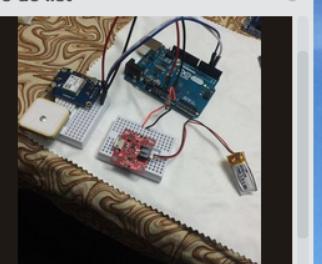
InPace * Private

Files & Links

Pulse Sensor Circuit & Tutorial


Bluetooth - xCode(iOS) & Arduino tutorial

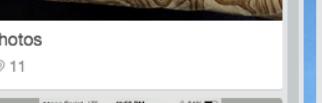

To do list

2. Test Part Functionality ✓

4 comments 1 reply

BLE Shield 0xFFE1 UTF-8
READ/NOTIFIED VALUES
Read again Listen for notifications
21:13:00.979
WRITTEN VALUES
Write new value
red 21:27:49.940
red 21:28:15.72
magenta 21:27:59.003
yellow 21:27:49.400
blue 21:27:44.403
DESCRIPTORS

Photo Documentation

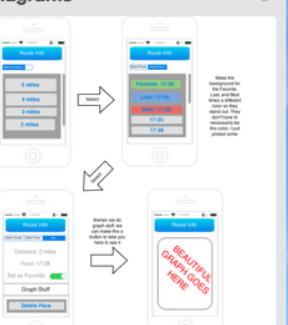
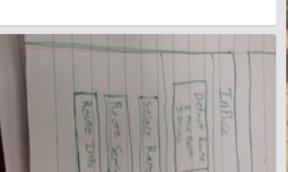
Photos 11


Add a card...

Necessary Features

List of features 1
GPS sensor
Arduino w/Bluetooth
Way to display battery level
Way to display time (ahead or behind) ex: +00:07.... or -00:25... etc.
Can analyze data on computer after sending through bluetooth... eventually port analysis app to iOS & Android
We might need an onboard micro SD card for data storage if user

UI Diagrams

UI Route Info 1

UI select route 3

Add a card...

GitHub Repo

<https://github.com/H-4-N-5/CS-3308-Project>

111 commits 1 branch 0 releases 4 contributors

branch: master / +

Merge branch 'master' of https://github.com/H-4-N-5/CS-3308-Project

H-4-N-5 authored 6 hours ago latest commit cd0c8e1cba

3d Models	3d models for part cases	14 days ago
Arduino Code	worked on bluetooth for hours lol	a day ago
AssignmentPDFs	Added InPace_Part_7.pdf to git	5 days ago
Circuit_Schematics	added fritzing diagram	4 days ago
Fritzing	added fritzing diagram	4 days ago
Icons and Launch Image	updates for madision	7 days ago
InPace	Merge branch 'master' of https://github.com/H-4-N-5/CS-3308-Project	6 hours ago
Photo_Documentation	more photos	6 hours ago
Photoshop App Icon Files	updates for madision	7 days ago
core-plot	Added core-plot directory to the main directory	a day ago
doc	added documentation	5 days ago
test	cleaned up directory structure	7 days ago
.gitignore	added gitignore	4 days ago
Final-Steps.docx	updated Final-Steps.docx with goals for this week per person	15 days ago
InPace.vp	just in mind prototype	a month ago
InPace_Documentation.pdf	adding documentation pdf (for comp techsport/play)	14 days ago

Code

- Issues 0
- Pull requests 0
- Wiki
- Pulse
- Graphs
- Settings

HTTPS clone URL
<https://github.com/>

You can clone with [HTTPS](#), [SSH](#), or [Subversion](#).

Clone in Desktop

Download ZIP

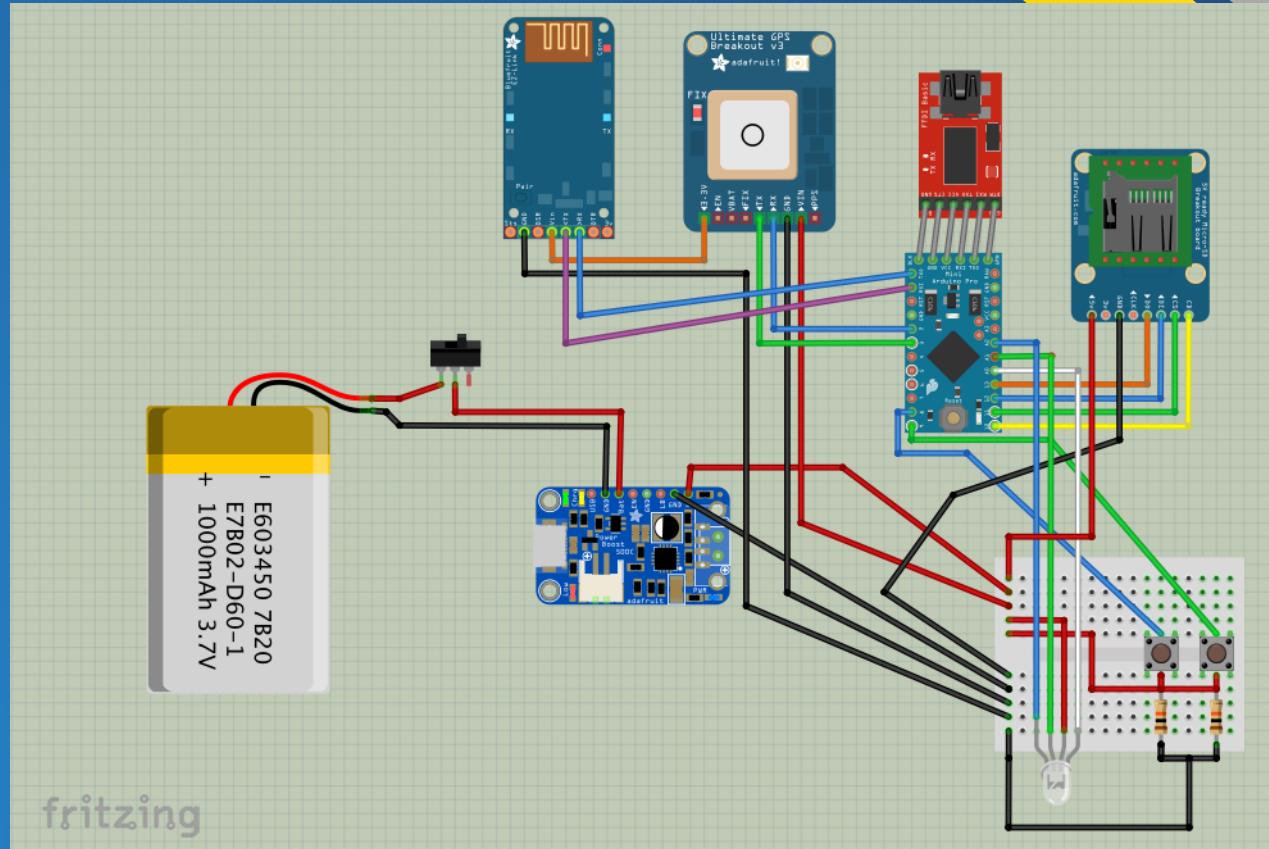
Testing

- Objective-C is apparently above using Unit Testing frameworks
- Used a framework created by a mutual friend used for autograding CS-1300 classes
- ~4/5

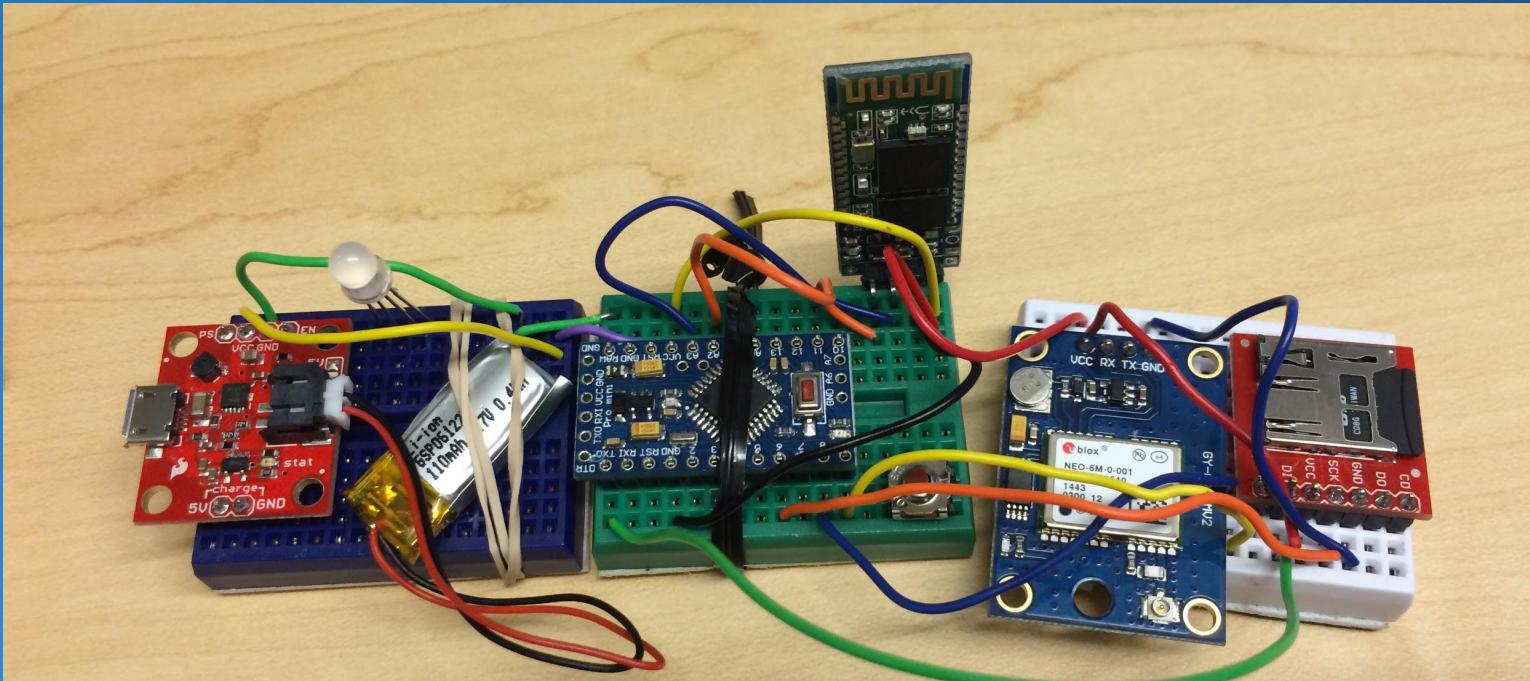
Parts List

- Arduino Pro Mini
5V/16mHz
- 3.7V 110mAh Single Cell LiPo Battery
- 3.7V 500mA LiPo Charger
- 3.7 -> 5V Voltage Booster/Regulator
- BLE Mini Bluetooth 4.0 Transceiver
- MicroSD Breakout
- GPS Module
- Common Anode RGB LED
- Momentary Push Buttons
- 2-Way Switch
- 200 Ohm and 10K Ohm Resistors
- Wire

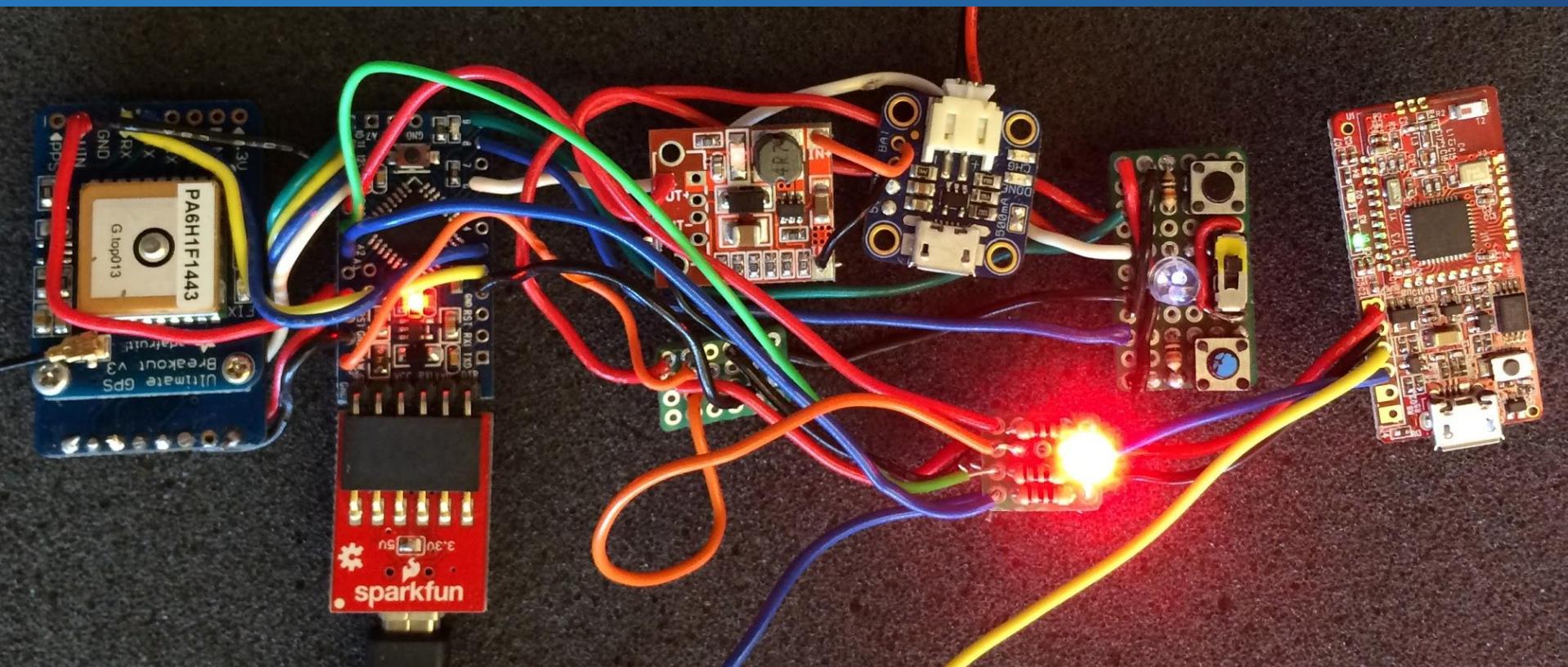
Circuit Design



Breadboard Prototype



Final Electronics Circuit



Challenges

- BIG project for a single semester!
- Limited flash memory on Arduino, and other hardware constraints
- Limited sources of Xcode 6 documentation
- Scheduling difficulty
- Communication between 4 different programming languages
- Finding and arranging small electronic components