▬▬ *ARTIFACT "THIS = THEN = THAT"*

Martin-John Hearty - GitHub: https://github.com/MartinJohnH/Cart360
Instructor(s): Elio Bidinost & Sabine Rosenberg
CART 360 - Section AA

Link to Progressive Web App (PWA): https://tracket-a1e05.web.app/
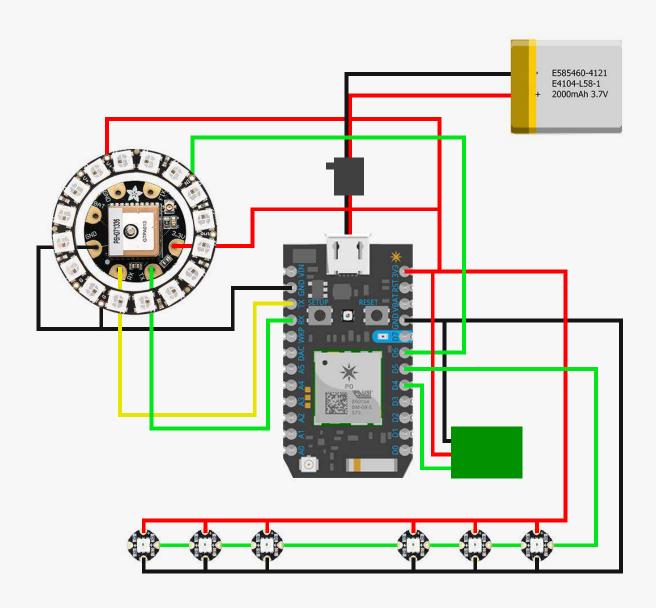
Insights & Future Development

I had trouble finishing this project at the fidelity level I had initially anticipated. It took me a lot of time getting the electronic parts connected to the jacket. It was difficult to sew all the electronics correctly. I had to make sure that the resistance from the sewable conductive thread was not too high. I had to restart three times before getting the hang of it. I also struggled with the particle. I lost a lot of time trying to configure it to connect to the internet. Working with Visual Studio Code made it difficult to upload the code correctly. The terminal would say that it got flashed, but the serial monitor would indicate that the new code was not uploaded properly. This was frustrating because I wanted to connect my electronics to my jacket and have my particle ready at the same time to be able to plug everything in. This made it difficult to make progress, so I took the decision to connect everything to the Arduino instead. By doing so, I knew I was going to be losing my connection between my jacket and my web app.
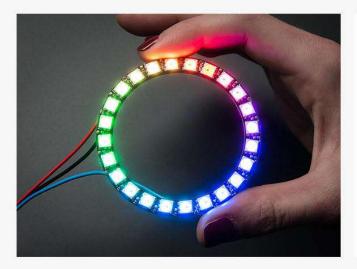
I have a SQLite database that gets updated with a GET request from a PHP file which sends all the data collected from the jacket to the database. Once the data is sent, I do a post request to my Gatsby.js web app to refresh the content on the site to display the new information. The data from the database then gets queried using GraphQL which then gets attached to a react component which then updates the state of the components and displays the required information.

For future development, I would like to get the particle working correctly. Once I can get my code up and running on it correctly, I can then plug my electronics into the particle while being careful not to fry the microcontroller as my neopixel ring and GPS require 5 volts. It then becomes a bit of a hassle to connect a battery that has to output 5V to the vin pin, and run all the power from there. The advantages of the particle are great as it is small and as it can connect to wifi. Not that it made my project too complex, but it slowed my progress down making it difficult to complete the entire project in time.

I also would like to integrate more functionally into my jacket. For example, I would add a goal feature that would allow the user to set a certain goal on their device. The jacket would then respond if these goals were accomplished. As you run, the LEDs could light up and flash a different colour for a few seconds to indicate to the user that their goal was achieved. I enjoyed working on this project. It was my first time making a project related to wearable electronics and also my first time connecting a SQLite database to a Gatsby React app with GraphQL which is my preferred environment for the development of a progressive web app. There is lots of potential when connecting a physical artifact to the internet.
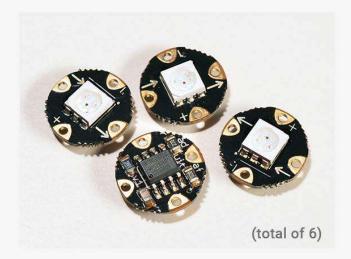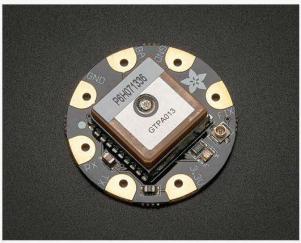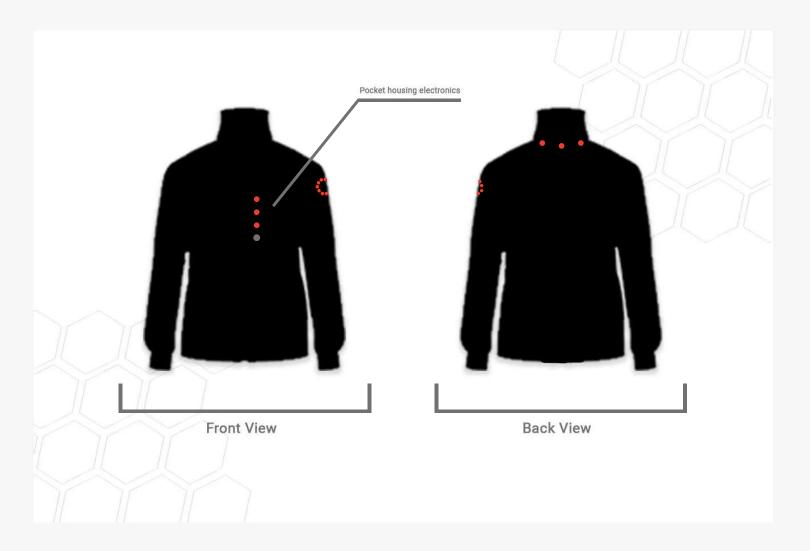
(total of 6)

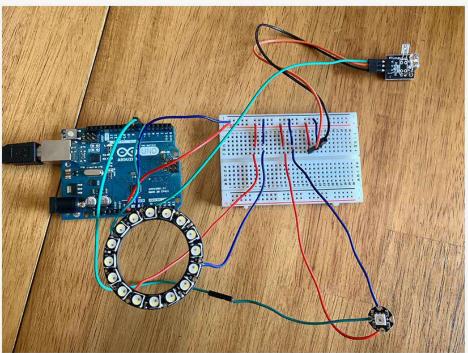Pocket housing electronics

Front View

Back View

POLAR

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POLAR
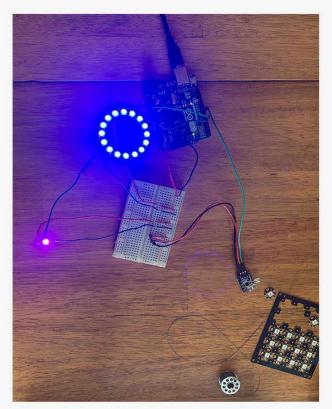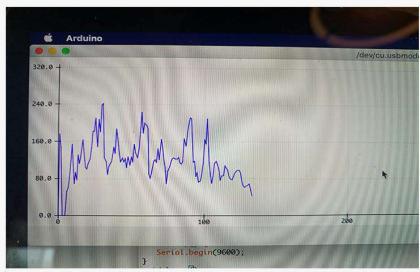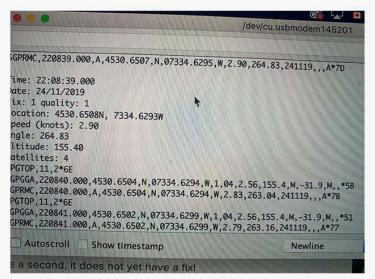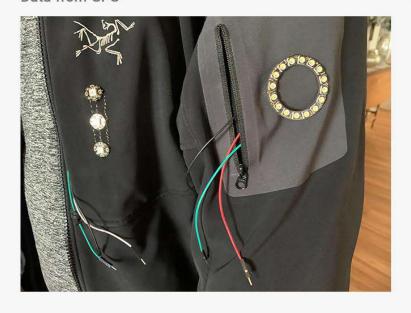
Data from heart rate sensor

$GPRMC,220839.000,A,4530.6507,N,07334.6295,W,2.90,264.83,241119,,,A*7D

Time: 22:08:39.000
Date: 24/11/2019
Fix: 1 quality: 1
Location: 4530.6508N, 7334.6293W
Speed (knots): 2.90
Angle: 264.83
Altitude: 155.40
Satellites: 4
$PGTOP,11,2*6E
$GPGGA,220840.000,4530.6504,N,07334.6294,W,1,04,2.56,155.4,M,-31.9,M,,*5B
$GPRMC,220840.000,A,4530.6504,N,07334.6294,W,2.83,263.04,241119,,,A*7B
$PGTOP,11,2*6E
$GPGGA,220841.000,4530.6502,N,07334.6299,W,1,04,2.56,155.4,M,-31.9,M,,*51
$GPRMC,220841.000,A,4530.6502,N,07334.6299,W,2.79,263.16,241119,,,A*77

Data from GPS

Colour inspiration:
my jogging shoes

HEX:#0C0C0C

HEX:#141414

HEX:#EC4032

HEX:#EC6358

HEX:#FAA45F

← **DISTANCE**
Oct27-Nov, 2019

Visualizing data

Takes up a bit of space
Easy to compare

OR

Takes up less space
Not as easy to comapre

OR

Takes up less space
Soso to compare

TRACKET

Distance — Avg
Speed — Avg
Pulse — Avg

TRACKET

Distance — Avg
Speed — Avg
Pulse — Avg

TRACKET

DISTANCE — Avg
SPEED — Avg
PULSE — Avg

TRACKET

CONNECTED
DISTANCE — Avg
SPEED — Avg
PULSE — Avg

TRACKET

CONNECTED
DISTANCE: 5.5km — Avg
SPEED: 12km/h — Avg
PULSE: 200 beats/min — Avg

TRACKET

CONNECTED
DISTANCE: 5.5km — Avg
SPEED: 12km/h — Avg
PULSE: 200 beats/min — Avg

TRACKET

CONNECTED

DISTANCE: 5.5km

Avg

SPEED: 12km/h

Avg

PULSE: 200 beats/min

Avg

← DISTANCE
Oct27-Nov, 2019

Avg

SUN: 4km

MON: 3.7km

TUE: 5.5km

WED: 3km

THU: 3.1km

FRI: 3.6km

SAT: 3.2km

← DISTANCE
Nov, 2019

Avg

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▼ 📁 tracket ~/Documents/WebsitesProjects/tracket
  ▶ 📁 .cache
  ▶ 📁 node_modules  library root
  ▶ 📁 public
  ▼ 📁 src
    ▼ 📁 components
        barGraph.js
        header.js
        image.js
        layout.js
        seo.js
        summary.js
    ▼ 📁 css
      ▼ 📁 base
          layout.css
          main.scss
          variables.scss
      ▼ 📁 components
          header.scss
      ▼ 📁 pages
          home_page.scss
        imports.scss
    ▶ 📁 images
    ▼ 📁 pages
        404.js
        distance.js
        index.js
        pulse.js
        speed.js
    .gitignore
    .prettierignore
    .prettierrc
    gatsby-browser.js
    gatsby-config.js
    gatsby-node.js
    gatsby-ssr.js
    LICENSE
    package.json
    package-lock.json
    README.md
```

GatsbyJS

ReactJS

GraphQL

Sass

SQLite