



Design Review 3



Team FitByte

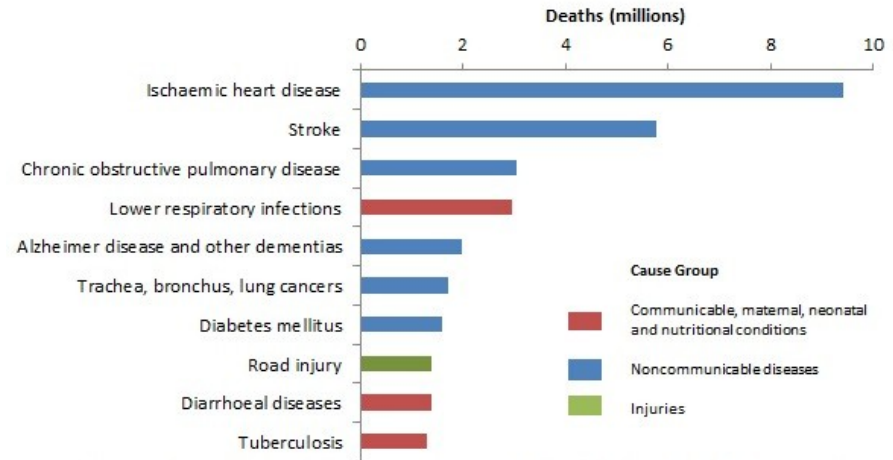
Jake Farrar, Jacob Lemon, Austin Pederson

Sponsors: Dr. Kyle Winfree, Dr. Gregory Dominick
Mentors: Ana Paula Chaves Steinmacher, Dr. Eck Doerry

Bio-Behavioral System to Motivate and Reinforce Heart Health

- Heart Health
- What is Fitbit

Top 10 global causes of deaths, 2016



Source: Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization; 2018.



Sponsors



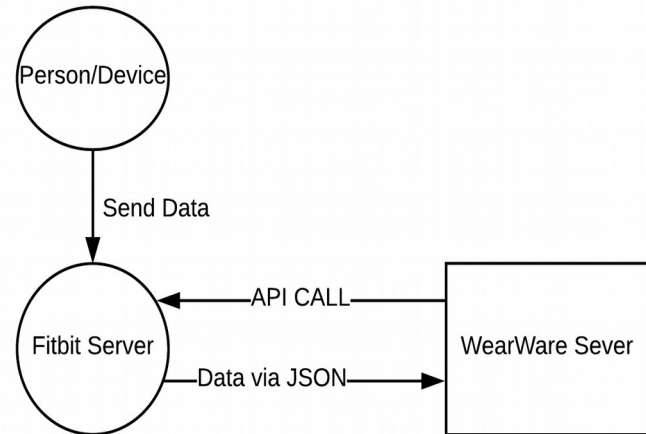
Dr. Kyle Winfree, NAU



Dr. Gregory Dominick, UDel

Currently Working Product

- Developed by former NAU employee, Adam Perrv
- Updated by NAU employee, Mike Fell
- Problems with product
 - Poor UI
 - No Contact Tool
 - Localized
 - Limited Analysis





Problems



Solutions

Localized

Poor UI

No Contact Tool

Limited Analysis

API access

Updated WebApp

SMS messages

Analysis software used



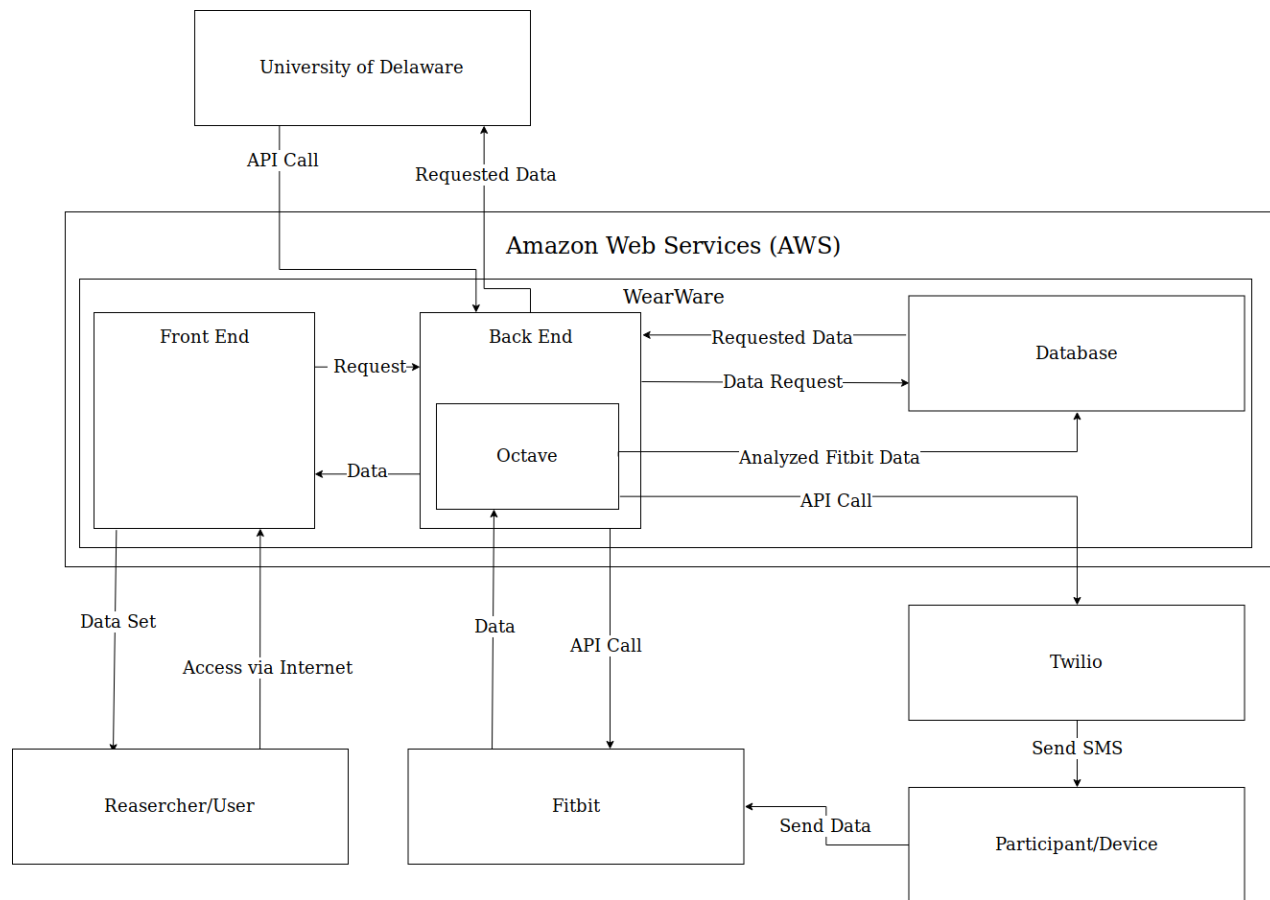
Requirements

- Accessing the database
- Adding to the database
- Analysis of the data
- Improvement of the web application
- Participant notification



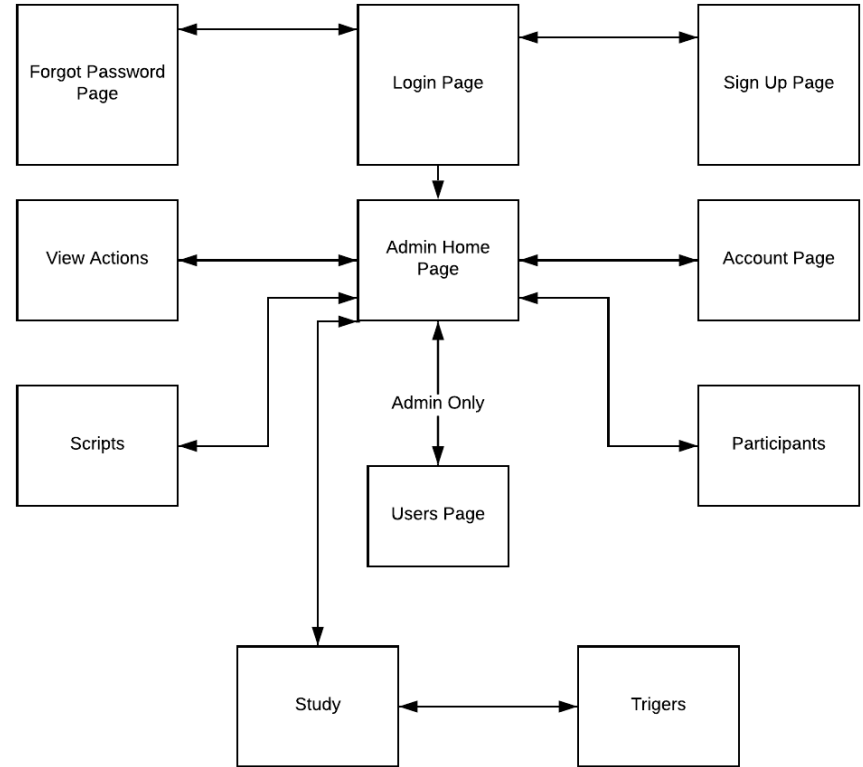
Implementation Overview

- Amazon Web Services
- Django Web Framework
- PostgreSQL
- Octave
- Twilio





Architecture Overview



Localized



API Access

Django REST framework

austin

Api Root / User List

User List

OPTIONS

GET

GET /api/users/

HTTP 200 OK

Allow: GET, POST, HEAD, OPTIONS

Content-Type: application/json

Vary: Accept

```
[
  {
    "url": "http://localhost:8000/api/users/1/",
    "email": "",
    "username": "AnonymousUser"
  },
  {
    "url": "http://localhost:8000/api/users/3/",
    "email": "bob@gmail.com",
    "username": "bob"
  },
  {
    "url": "http://localhost:8000/api/users/2/",
    "email": "amp845@nau.edu",
    "username": "austin"
  }
]
```



Poor UI



Updated WebApp

- 🏠 [WearWare](#)
- [Participants](#)
- [Scripts](#)
- 👤 [Administrator](#)

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WearWare

User Info

Austin Pederson April 11, 2019

amp845@nau.edu

Announcements This is the message of the day!

[Edit Announcements](#)

[Add Study](#)

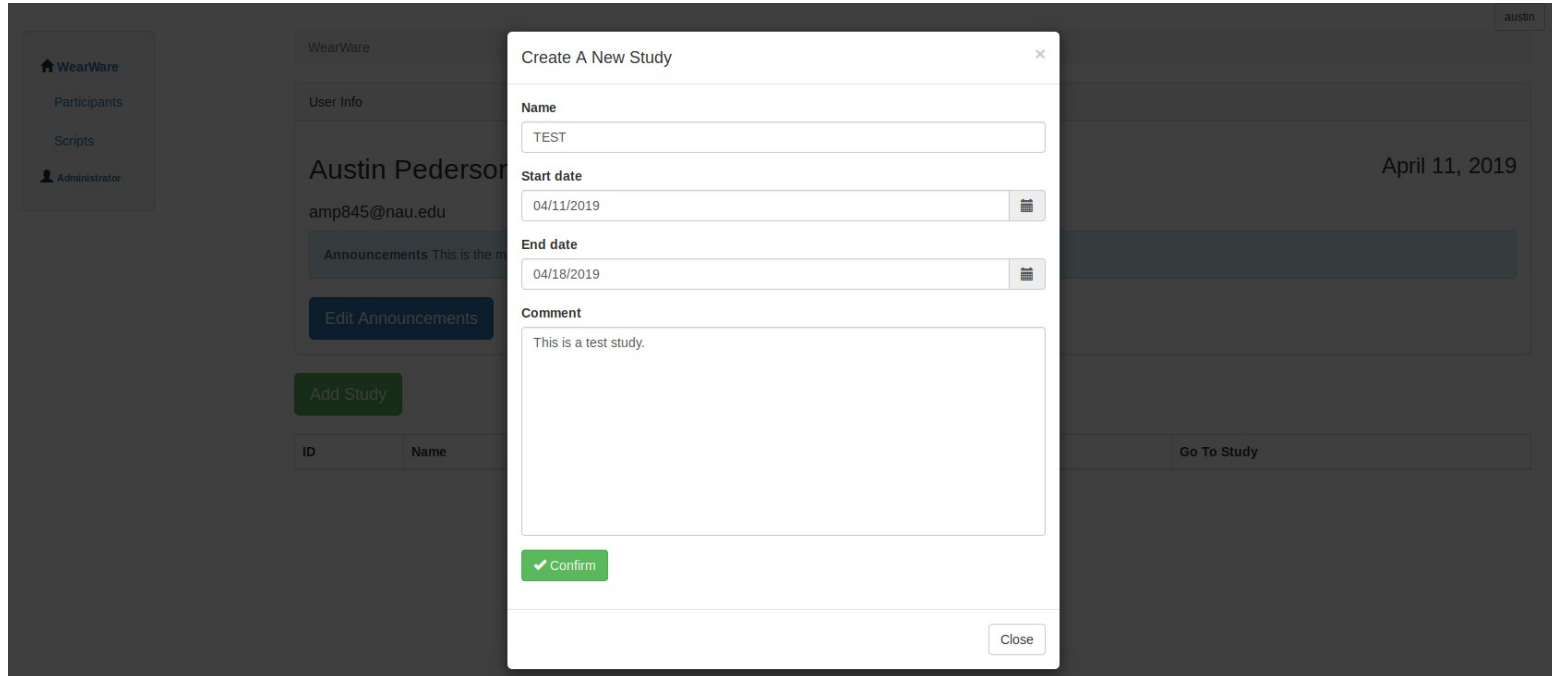
ID	Name	Start Date	End Date	Go To Study
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Poor UI



Updated WebApp

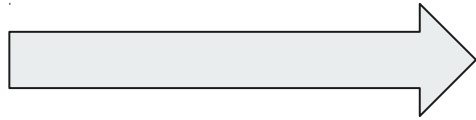


The screenshot displays a web application interface. On the left, a sidebar contains navigation links: 'WearWare', 'Participants', 'Scripts', and 'Administrator'. The main content area shows a user profile for 'Austin Pederson' with email 'amp845@nau.edu'. A modal window titled 'Create A New Study' is open, containing the following fields:

- Name:** A text input field containing 'TEST'.
- Start date:** A date picker field showing '04/11/2019'.
- End date:** A date picker field showing '04/18/2019'.
- Comment:** A text area containing 'This is a test study.'

At the bottom of the modal, there is a green 'Confirm' button with a checkmark icon and a 'Close' button. The background page is dimmed and shows a date 'April 11, 2019' and a 'Go To Study' button.

Poor UI WebApp



Updated

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WearWare

Participants

Scripts

Administrator

WearWare

Success! Created a new study titled: TEST

User Info

Austin Pederson

April 11, 2019

amp845@nau.edu

Announcements This is the message of the day!

Edit Announcements

Add Study

ID	Name	Start Date	End Date	Go To Study
1	TEST	April 11, 2019	April 18, 2019	CLICK ME



Poor UI



Updated WebApp

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[WearWare](#) / [Study: 1](#)

[Back to Dash](#)

[View Triggers](#)

Study: TEST

Start Date: April 11, 2019

End Date: April 18, 2019

Description: This is a test study.

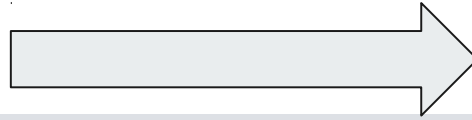
[Add Participant](#)

[Invite User to Study](#)

Participants

Identifier	First Name	Last Name	Email	Phone	Fitbit Account	Active
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No Contact



Contact Tool

WearWare / Participants

Back to Dash

Participants

Import

Export

Identifier	First Name	Last Name	Email	Phone	Fitbit Account	Active	Mark
1	Jake	CONFIDENTIAL			REGISTER	True	<input checked="" type="checkbox"/>
2	Brett	CONFIDENTIAL			REGISTER	True	<input checked="" type="checkbox"/>
3	Karla	CONFIDENTIAL			REGISTER	True	<input checked="" type="checkbox"/>

Test

Test

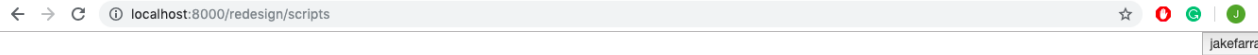
Text Message



Customization Software



Analysis



- 🏠 WearWare
- Participants
- Scripts
- 👤 Administrator

WearWare / Scripts

Back to Dash

Global Scripts

Update svn

Script Name	Script Description
confusionmatrix.m	
cpa.m	
createLabels.m	
describeStruct.m	
flag_implicit_skip_nan.m	
geomean_safe.m	
harmmean_safe.m	
kmeans.m	
kmeans2split.m	



Challenges

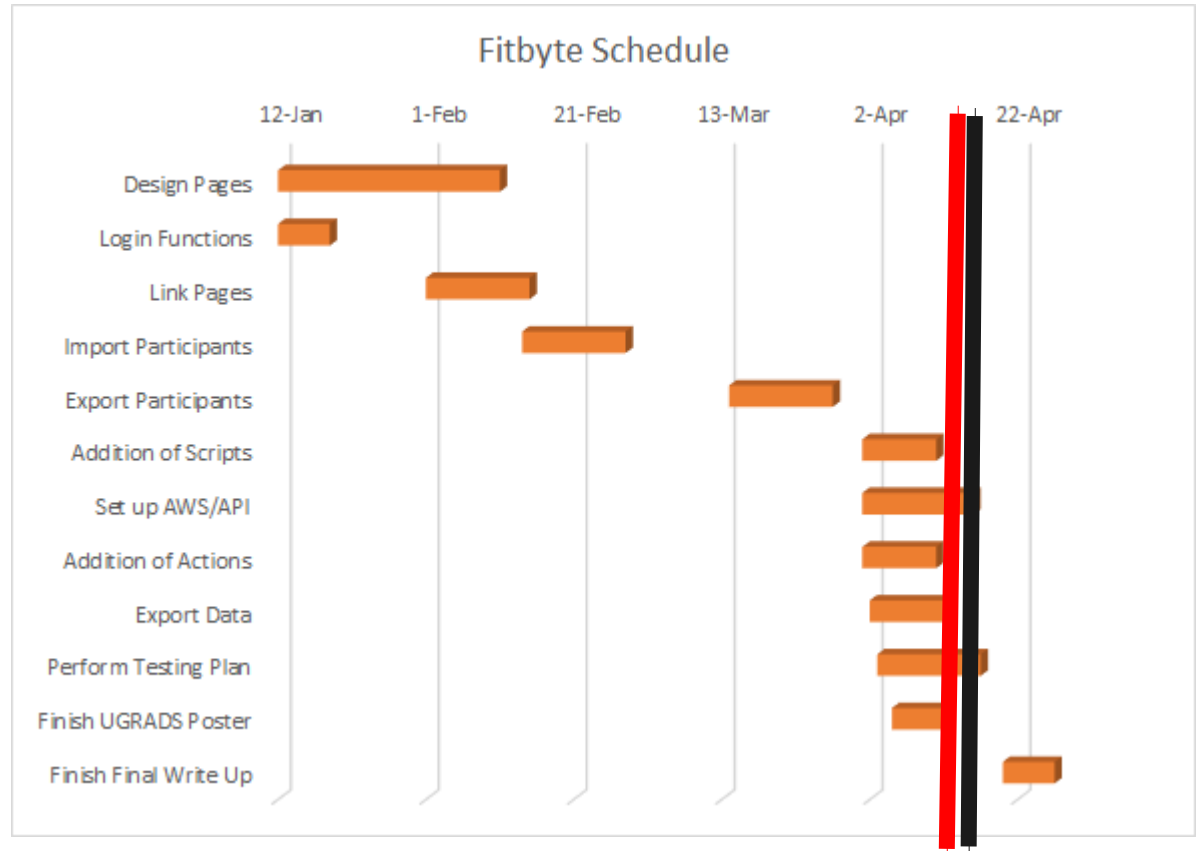
1. Large number of users in the database
2. Potential Security Flaws



Testing Plan

- Unit Testing
 - Small test suite checking individual pieces of functionality to make sure the correct responses are generated
- Integration Testing
 - Validate larger flows within our web app to check functionality of important features
- Usability Testing
 - Working with users to make sure that the program flows well and is simple to user

Schedule





Conclusion

- Work with our sponsors to expand the functionality and usefulness of their existing solution
 - Plan to improve the UI
 - Implement an API
 - Implement notifications
- Finish our testing plan and stay on schedule
- Motivated and excited for the overall outcome of the project



Questions?

Flow of Dashboard

