GNG2101

Design Project User and Product Manual

Your Fitbit App

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Table of Contents

List of Figures

List of Tables

List of Acronyms and Glossary

Table 1. Acronyms

Acronym	Definition
YFA	Your Fitbit App
UPM	User and Product Manual

Table 2. Glossary

Term	Acronym	Definition
Bill of materials	BOM	A list containing every single piece of equipment/resource purchased to create the product. Contains a total price at the bottom

1 Introduction

This User and Product Manual (UPM) provides the information necessary for all users to effectively use Your Fitbit App (YFA) and for prototype documentation.

Modern day smartwatches track daily activities like running, cycling, as well as monitoring sleep pattern and stress levels all by analyzing a person's movement and heart rate. However, these functions are irrelevant if the user has an abnormal heart rate. To make those features accessible to users with irregular heart rates, YFA was developed.

This UPM is written for YFA users, developers, and anyone with an interest in the product.

The UPM begins with an Overview that explains why YFA was created and introduces the application along with its main features. It then proceeds to Getting Started, which provides a general guide to starting, using, and exiting the app. For a more detailed explanation of every feature, readers can look to the section right after, Using the Application. The next topic, Prototype Documentation, details how the final prototype was created. After everything is wrapped up, the UPM concludes.

2 Overview

Nowadays, smartwatches are capable of more than just fitness tracking. They can monitor sleep cycles, stress levels, and many other quantifiable health traits as well. For those with special health conditions, smartwatches have become the affordable and convenient alternative for the expensive and uncomfortable equipment they had to use in the past.

Unfortunately, smartwatch health tracking is not accessible to all those who need it. Because the metrics that cannot be directly measured (sleep, stress, etc.) are calculated through changes in heart rate and movement, those with abnormal heart rates rarely get accurate readings. For example, a person with a slower than average heart rate is sometimes recorded as resting, or even sleeping, despite doing exercise.

Often, abnormal heart rate manifests as a symptom of another, more severe health condition that needs to be monitored, or would benefit greatly from general health tracking. Therefore, it is important to make this feature accessible to these users.

To accomplish this, the traits that cannot be directly measured must be recalculated so that accurate values can be displayed.

The correction of general health metrics is what sets YFA apart from other apps that are currently available. Instead of simply displaying the data that was already provided by Fitbit, YFA performs its own calculations to achieve maximum accuracy.

The reason Fitbit and other leading smartwatch brands do not account for this is because they are specialized fitness tracking devices. The minority of people that cannot access the Fitbit's general health tracking features are not part of their target audience. YFA is the opposite of this.

The application's only target audience is that very minority and it makes those same features accessible to everyone with an abnormal heart rate.

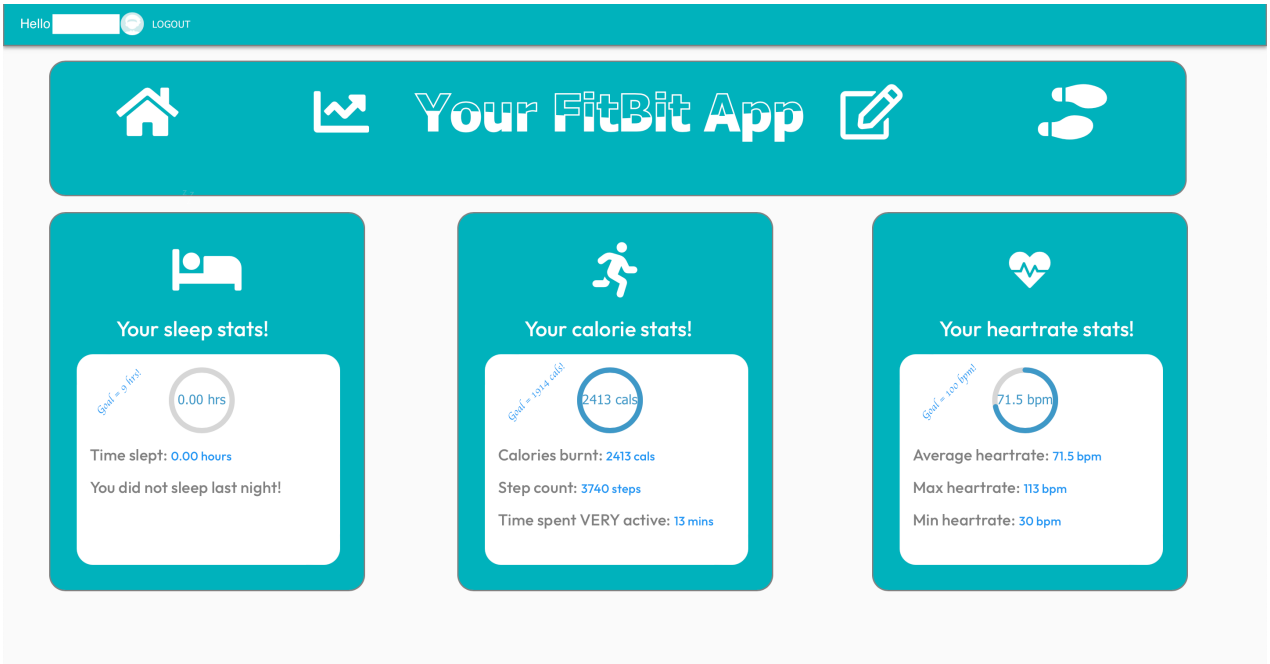

Figure 1: YFA home page

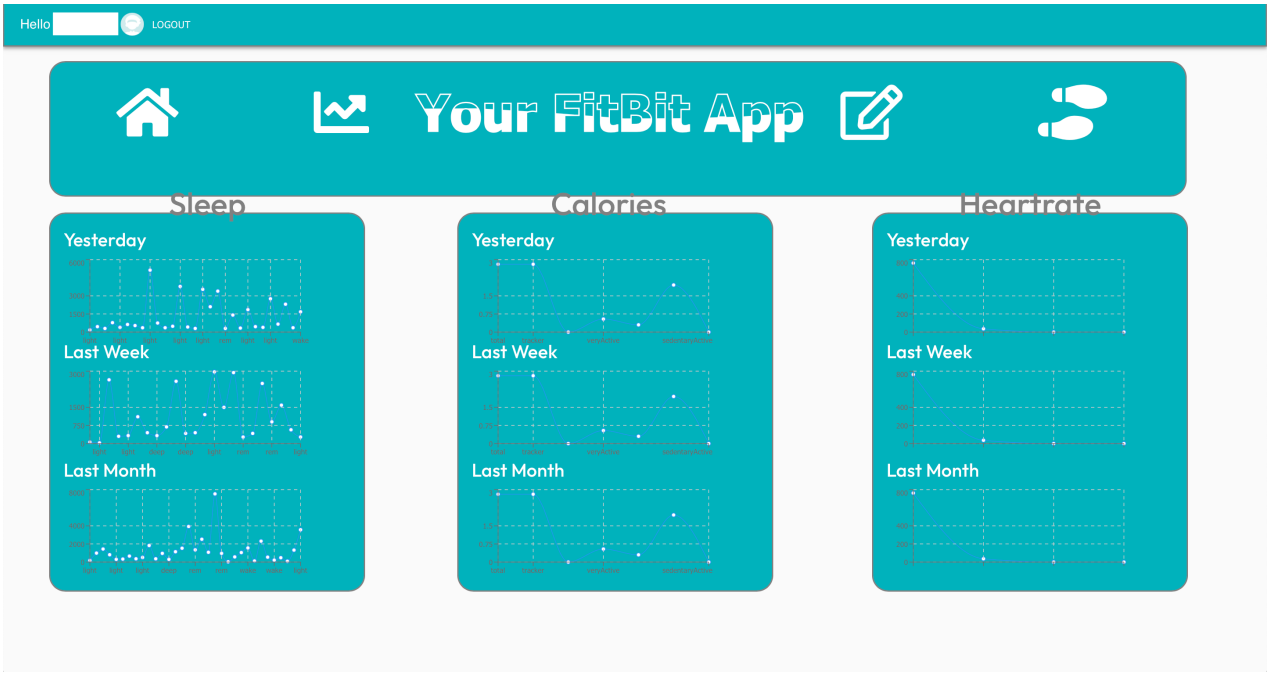

Figure 2: YFA graphs page

YFA is a web application that can be accessed by logging in with their Fitbit account. Users can access every page through the navigation bar and logout using the logout button in the top left corner.

3 Getting Started

3.1 Set-up Considerations

When accessing YFA, do so through a computer as the web app has not yet been optimized for mobile devices.

3.2 User Access Considerations

As of now, YFA only supports Fitbit smartwatches. To log into to the web application, users must do so via a Fitbit account.

3.3 Accessing the System

After arriving to the web site, users will automatically be taken to the login page.

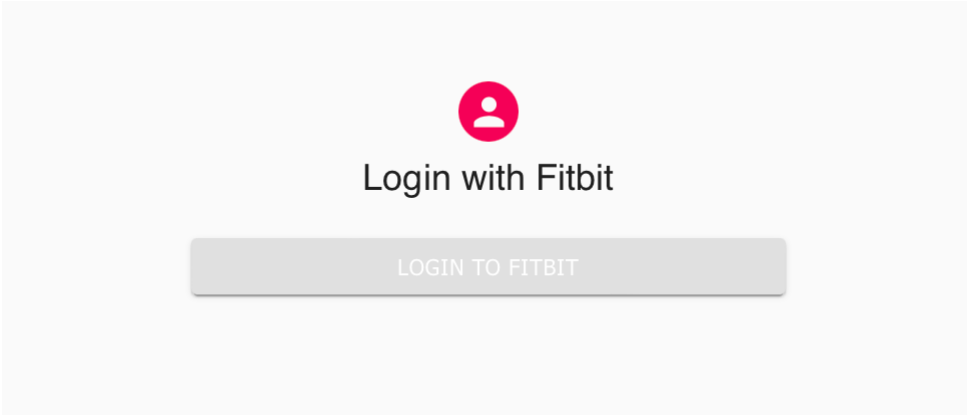

Figure 3: YFA login page

Then, by clicking the login button, users will be able to automatically login to the site using their Fitbit account. If the user has no Fitbit account associated with their device or browser,

they will be taken to next login step where they will be able to enter their email and password to login manually.

3.4 System Organization & Navigation

Once a user has logged in, they are taken to the home page.

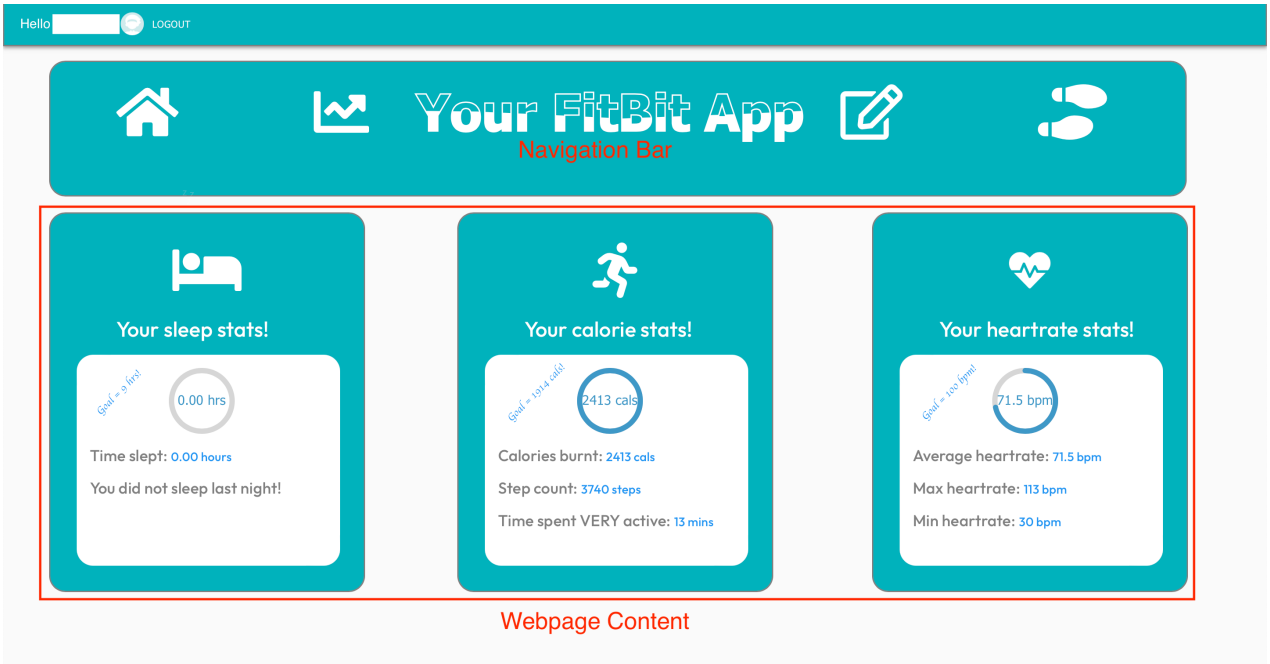

Figure 4: YFA home page with layout guide

Every page has a similar layout and an identical header. The header also functions as a navigation bar that allows users to visit other webpages, i.e., the graphs pages, the profile page, and the steps page.

3.5 Exiting the System

To exit the application, users can simply logout using the button on the top left corner.

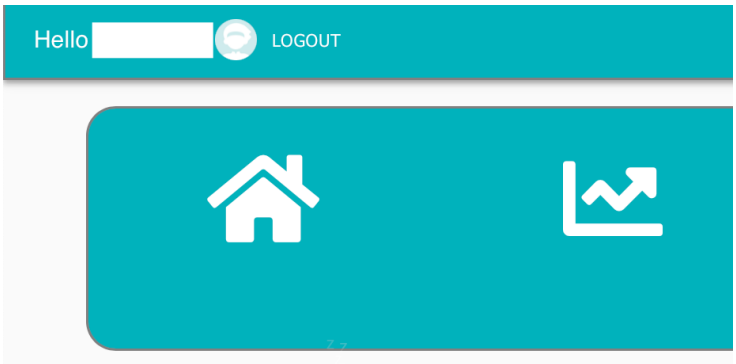

Figure 5: Zoomed in image of YFA logout button, located above the header

Users will then be taken back to the initial login page where they can close the tab and terminate the application.

4 Using the App

4.1 Viewing Daily Statistics

To view the daily health statistics, please navigate to the home page. It is here that you will find the daily statistics regarding sleep, calories burned, and heart rate displayed. This information was taken from your Fitbit account once you have logged in with your account. This page can be accessed after logging in or by clicking the home button on the left of the toolbar.

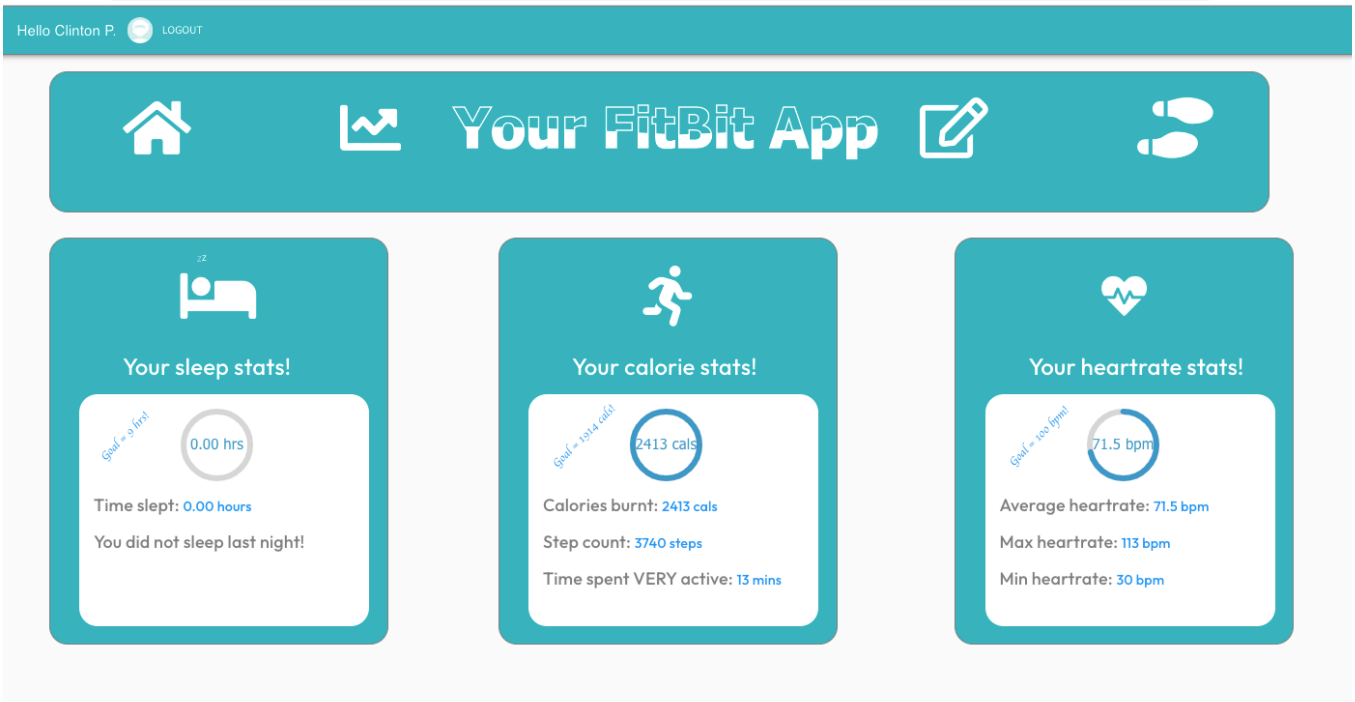

Figure 6: Menu that displays daily statistics

4.1.1 Sleep

Regarding sleep, the application will display the number of hours you slept as well as the number of hours you wish to obtain each night in the form of a goal.

4.1.2 Calories

Regarding calories, you can view the number of calories burnt, the number of steps you have taken and the time that has been spent being highly active. Additionally, your ideal number of calories to be burnt (in the form of a goal) has been displayed.

4.1.3 Heart Rate

Regarding heartrate, the application will display your average heart rate, your maximum heart rate and your minimum heart rate. Your goal heart rate is also displayed.

4.2 Graph Display

By clicking on the graph button on the left of the word ‘Your’ in the toolbar, you will be able to view health data graphs from various time periods. This page allows you to compare different health statistics pertaining to sleep, calories, and heartrate from yesterday, last week and last month. This information was taken from your Fitbit account once you have logged in with your account.

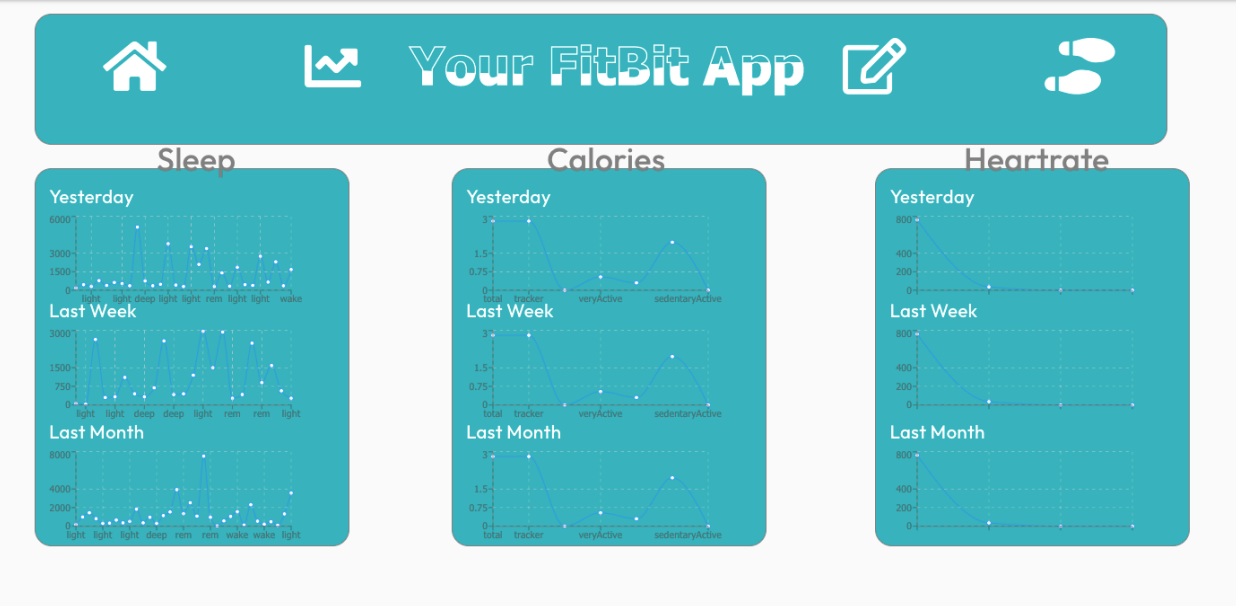

Figure 7: graphs page that displays daily, weekly, and monthly statistics

4.2.1 Sleep Graph

This graph displays the number of seconds you were in various sleep stages yesterday, last week and last month.

4.2.2 Calories Graph

This graph displays the distance you travelled in various activity stages yesterday, last week and last month.

4.2.3 Heart Rate Graph

This graph displays the beats per minute your heart produced for a given period in minutes yesterday, last week and last month.

4.3 Personal Information and Friends List

By clicking on the paper and pencil button to the right of the word ‘App’ in the toolbar, you will be able to view your personal information and friends list. This page allows you to view the personal information associated with your Fitbit account as well as the friends you have added on this application.

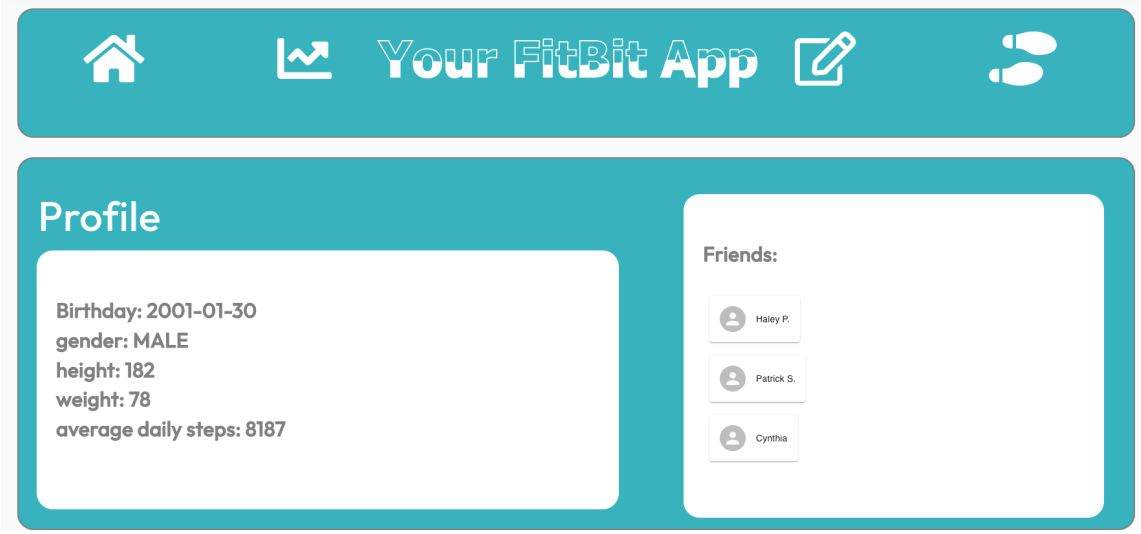

Figure 8: Personal information and friends list page that displays your personal information and who your friends are on the app

4.3.1 Personal Information

This page allows you to view your birthday, gender, height, weight, and average daily steps in your preferred units.

4.4 Step Counter

By clicking on the footsteps icon on the far right of the toolbar, you will be able to view the step counter service of the application. This page allows you to view the total steps taken, the total

floors climbed and the total distance you've travelled by foot. In the graphs, it is also possible to view the number of steps, floors and distance you need to travel to reach your step, floor and distance goals.

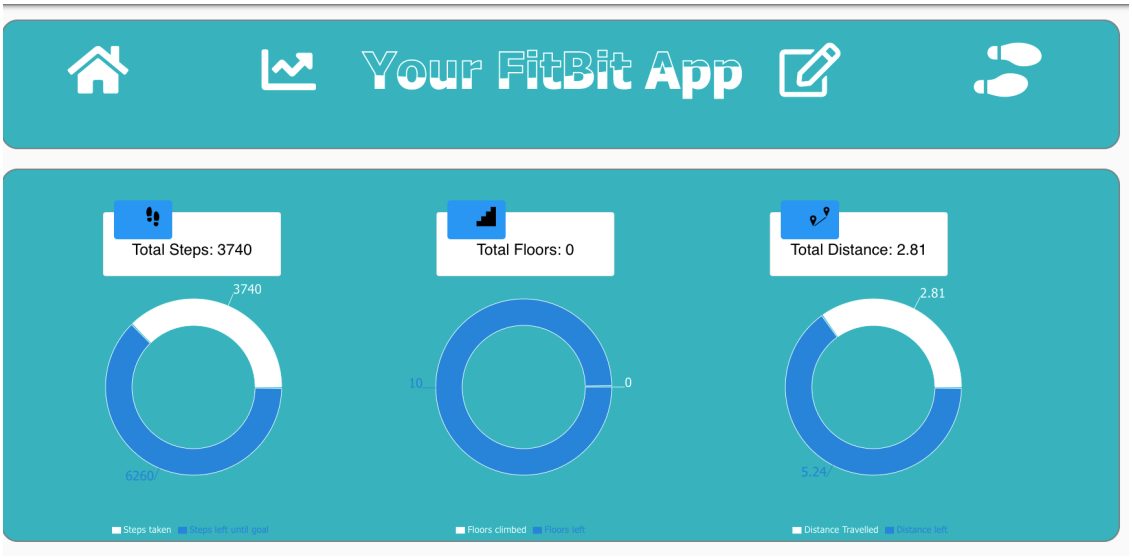

Figure 9: Step counter page that displays information regarding the number steps, floors and distance covered

5 Product Documentation

5.1 Materials and Equipement

5.1.1 BOM (Bill of Materials)

The table below demonstrates the items that the team requires to produce the final web application for the client. Each item is listed with its name, description, how many of that item will be required, its unit cost and extended cost. The total cost is determined by the unit costs of each item added up, with a plus indicating that the total cost could be more due to uncertainty of how many team members require certain items and how long an item will be needed for (ex. yearly subscriptions for the domain and server hosting items).

Table 3: Bill of materials

Item Number	Part Name	Description	Quantity	Unit Cost	Extended Cost
1	Programming language software: React.js framework	This JavaScript library that is available will allow user interfaces to be developed while simultaneously allowing code to be "more predictable and easier to debug."	5	$0.00	$0.00
2	Programming language tutorial: CSS, SQL, D3.js on Youtube.com	As the following programming languages are new to many of the members on the team, it may be helpful for each member to consult the variety	5	$0.00	$0.00

		of video tutorials on specific concepts for these languages.			
3	Integrated Development Environment to develop code: Atom	This software will allow each member to contribute to the development of the app. Each team member will be able to code individually on the device of their choice.	5	$0.00	$0.00
4	GitHub Repository and GitHub account	Having each member create a GitHub account, each member who codes will be able to push their changes to the web application's code and have this sync in with all other members' code. This is especially useful as many changes from various people will occur. This will also allow the team to have up-to-date code for every team member in a very efficient manner.	5	$0.00	$0.00
5	Server hosting	Server hosting allows the website to be "'served' to clients by a computer that allows clients to view the webpage." By purchasing this service, the website will be able	1	$0.00 server hosting from Heroku	$0.00

		to have its own user interface and other customizable features.			
				Total cost:	$0.00

5.1.2 Equipment list

N/A: There were no physical materials needed to construct this prototype besides the actual Fitbit the user (realistically) would already own.

5.1.3 Instructions

In order for the user to have their data connected to the website, they must first type out the link to our domain and login (using their Fitbit credentials) where the API will then be able to combine all of the users sleep cycles into one net hours slept metric.

5.2 Testing & Validation

Within this project the majority of testing came after the development of prototype 2. Group members were asked to bring two ‘testers’ (friends/ family members suggested) and allow them to use the user interface and asses 5 main criteria ranking each on a scale of 1-5 (5 meaning perfect 1 meaning needs improvement). These 5 criteria include: overall colour aesthetics, simplicity of design, overall user accessibility, page-page navigation and likelihood to use the app based on usability. Normally it would be difficult or even impractical to get feedback from sources that are

not the actual client/user. But the prototype testing plan for prototype II was designed to focus on the layout and overall aesthetics of the application rather than the application's core functionality.

Table 4: Prototype web app test results

Member	Tester	Colour & Aesthetics	Simplicity of Design	Overall User Accessibility	Page Navigation	Likelihood to use app
Sacha	#1	4/5	5/5	4/5	5/5	5/5
	#2	4.5/5	4/5	5/5	4/5	5/5
Carol	#1	4/5	5/5	4/5	4/5	5/5
	#2	5/5	4.5/5	4/5	4/5	3.5/5
Diane	#1	5/5	5/5	5/5	5/5	3/5
	#2	5/5	5/5	5/5	5/5	4/5
Charlie	#1	/5	/5	/5	/5	/5
	#2	/5	/5	/5	/5	/5
Clinton	#1	3.5/5	4/5	4/5	4/5	4/5
	#2	3/5	5/5	5/5	4/5	4/5

6 Conclusions and Recommendations for Future Work

Overall, as a team we would say the solution we were able to provide with the given time was a success. With that being said, looking back there are a few things could have changed to make the process smoother. For example, beginning the initial coding process early is critical (especially for those who are not already familiar with it). This is because it is a difficult process to understand and because the feedback from the client where we presented a functional prototype is actually what changed the way the interface looked the most.

For future reference, there was a variety of different ideas that could be pursued to continue to see progression within the website (most of which were inspired by companies that were benchmarked earlier apple watch and Fitbit). Like, expanding the profile page to have a friending/follower's system, or developing a food/water logging system where the user can input what they have eaten or drank in a given day. Or even a breathing/mindfulness page witch now in hindsight could be very beneficial to the client based off of how breathing affects heart-rate.

APPENDICES

7 APPENDIX I: Design Files

Table 5. Referenced Documents

Document Name	Document Location and/or URL	Issuance Date
Deliverables A-J	https://makerepo.com/sachasaleh/920.heart-rate-analysis-gng2101-group-pi-or-b31	Nov 1, 2021