

**Team Prototype 2:
Physical Prototyping: Wearables**

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INTRODUCTION

Wearable technology, or 'wearables' as they are now known, are the future of fitness tracking in the healthcare industry. Wrist trackers or watches like FITBIT, Garmin, or rings like Oura, tracking one's progress has become a crucial part of people's fitness journeys worldwide. Whether training for a marathon or just making sure you have your doctor's recommended steps in for the day, fitness trackers have shifted from luxury items to essentials.

PRODUCT DESCRIPTION

Team Nile created a wellness jacket as a wearable fitness tracker for this assignment's proposed prototype. This wearable jacket is called FUSS (the Hungarian word for running), and it tracks and records the following metrics:

- Heart rate;
- Body temperature and outside temperature;
- Breath rate; and
- Blood pressure.

The user simply has to wear the jacket and press the logo to turn on the wearable. The interwoven sensors track the individual health features and send the details to the app. The user has to download the fitness app 'FUSS' on their cellular device and then create an account and sync the jacket to the app. Once this is done, the user can start tracking their biometrics with the wearable.

The wearable has various sensors that include one for heart rate, located within the logo and placed near the heart. The jacket measures breath rate through the panel located near the waist of the jacket that measures the expansion and contraction of the entire upper body to give an

accurate reading. Upon activation through the phone, the jacket measures the blood pressure by compressing the left arm (similar to the method in which blood pressure is calculated) and gives the reading on the app. Lastly, body temperature calculates the user's temperature and the city/location's temperature by using a sensor in a similar location as the heart sensor.

Once the app is synced to the device, the app allows the user to create their profile if there is not one previously made.

The main menu shows the options to check the four key features described previously. Apart from the blood pressure, the rest of the features are measured constantly after the wearable is turned on. However, the blood pressure always needs to be calculated by activating it on the application.

The settings menu allows users to set personal health information and customize items like location and units.

JUSTIFICATION

- Our approach was to make a jacket that had an interface that was accessible and independent. We chose to have the display screen on a separate app that would sync with the jacket (wearable) instead of having the display on the jacket itself. The simple features and minimal design make it a versatile wearable. We anticipate the user to be a broader range of demographics.
- The wearable can be synced with other devices for athletes and serious fitness trackers, but at the same time, the simplicity makes it easy to use for senior citizens that might need to check their blood pressure while on a leisure walk.
- Creating an independent app instead of having a display on the jacket was to make the process and tracking more accessible. Having the display on an app that is a concept the user is familiar with makes the interface easy to follow.
- The app - which is the display of the wearable, allows the user to customize and also change the features. This feature also allows the jacket to be worn by more than one user. And can be synced with more than one cellular device.
- The jacket can be used independently and synced with other devices like a watch. This allows advanced use and can make the tracking more seamless. However, it can be used separately and does not need a watch.

FEEDBACK

Feedback 1: Ethan Hermann (a long-distance runner, Junior at Drexel University)

Ethan Hermann
This is so cool!!



Ethan Hermann
with runners we focus on
breathability and lightweight material
along with moisture wicking and
temp control



Feedback 2: Josie Burton (a track and field athlete) - feedback sent as an audio message

"I love the concept of this jacket, and I think it would be helpful for many people, especially those who are 40 years +, and anyone that needs to monitor their heart rate. I love the one-time synchronization, too, kind of like with headphones; you only have to sync them once, and it works. A suggestion is, what if when you zip up the jacket it automatically engages through the action of zipping up instead of pressing the logo? I think that would be cool."

CONSIDERATIONS AND REFLECTIONS:

While doing this prototype, we took a general approach that was design-focused but also approached this from a marketing/advertising perspective. It was challenging to develop something that seemed like a direct competitor to giants like Fitbit and Garmin yet unique. In addition to learning about and researching wearable technology, we also had to research fashion and fabric design as no member had a background in this sector.

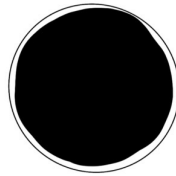
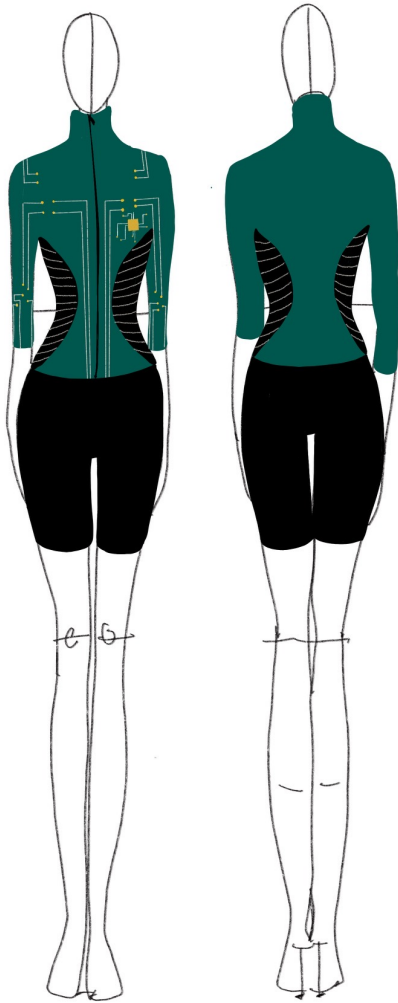
Fabric- The fabric was a challenge as the fabric should be resistant to different weather conditions and lightweight and breathable for the user who intends to use it for longer. The first physical prototype uses a denser, fleece-like fabric for colder weather. The second prototype was created based on the feedback received on the first one. Yet this seems to be an area that we could further explore.

Display- The initial idea was to go for a display that makes the jacket an independent wearable, but the choice to add the app made the jacket more accessible. The assumption was that most users are familiar with apps (separate from a mobile device or linked to a mobile device), making the app interface easy to learn.

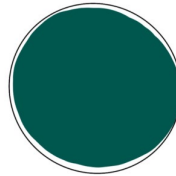
Sync - The choice to sync it with other devices or other trackers is something that we can further explore. There is a scope for linking it to other trackers for advanced users and users that want more detailed health and body tracking.

APPENDIX A: PROTOTYPE SKETCHES

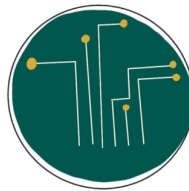
Sketch Idea 1



Temperature
Regulating fabric



moisture wicking
fabric.

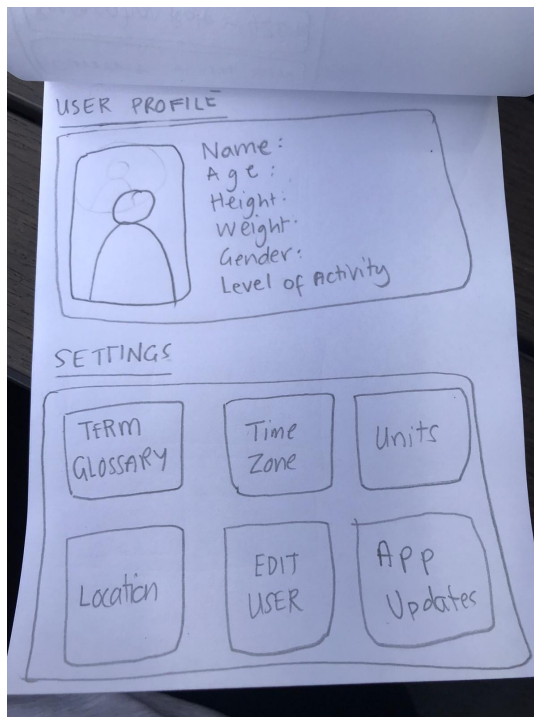
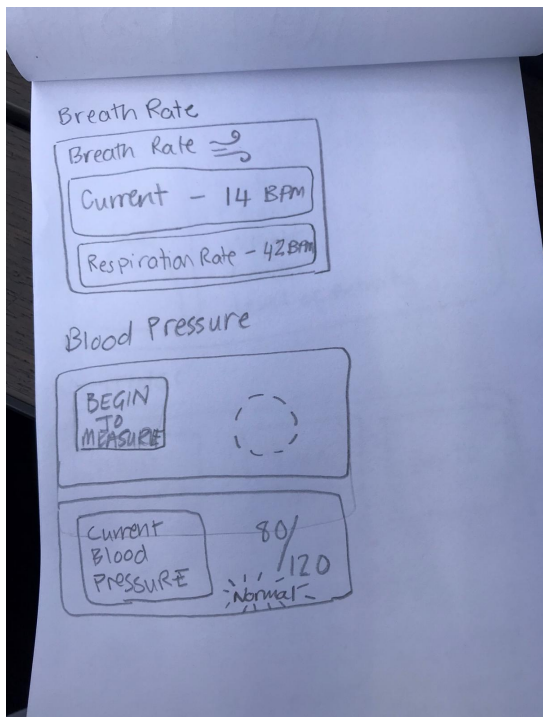
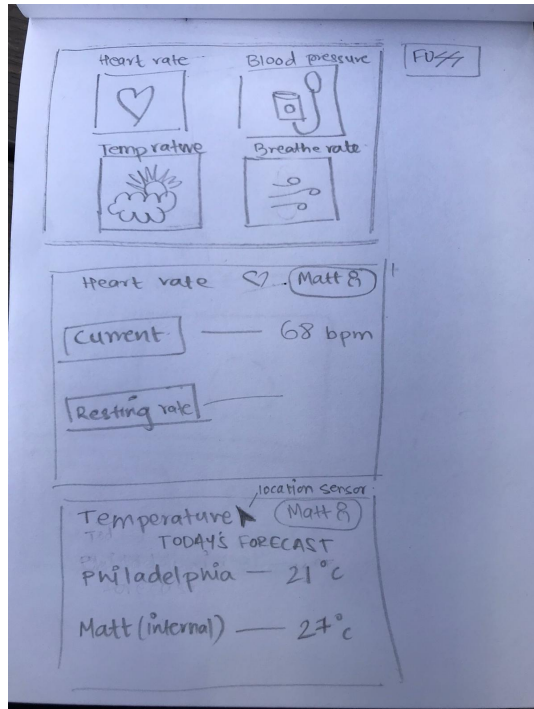
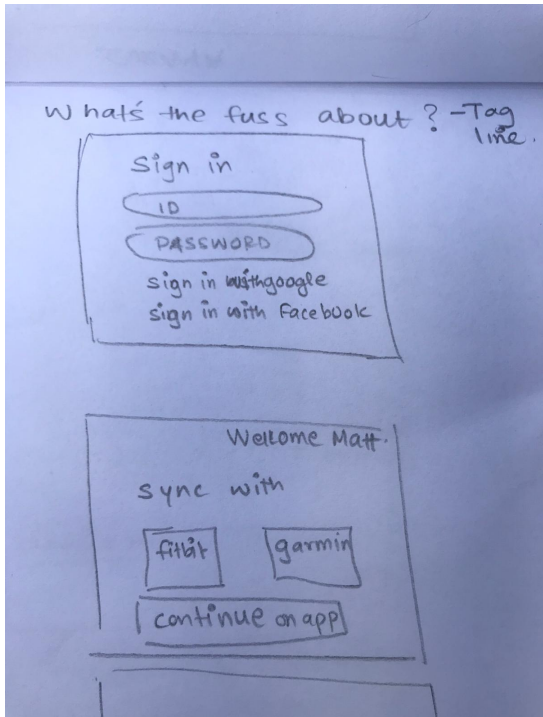


Computer Chip Fabric
- measures heart rate
- gathers data from
main pressure points

HOODED JACKET OPTION



APPENDIX B: PROTOTYPE APPLICATION SKETCHES

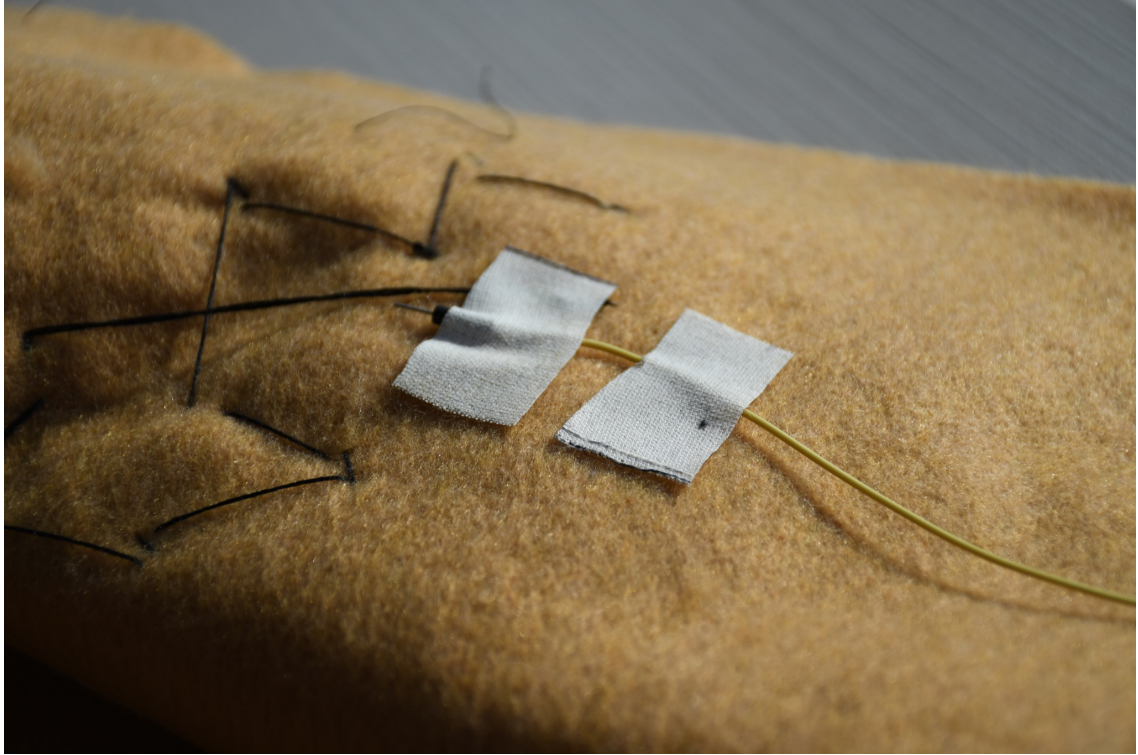


APPENDIX C: PROTOTYPE ITERATIONS

Iteration 1: Sewing the concept









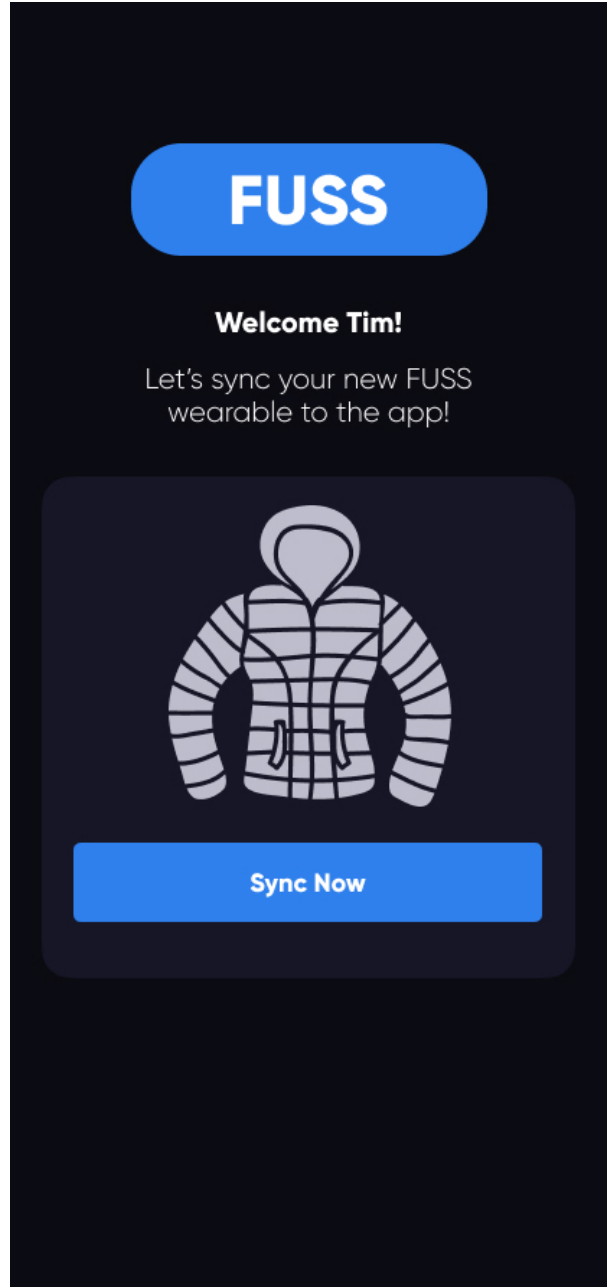
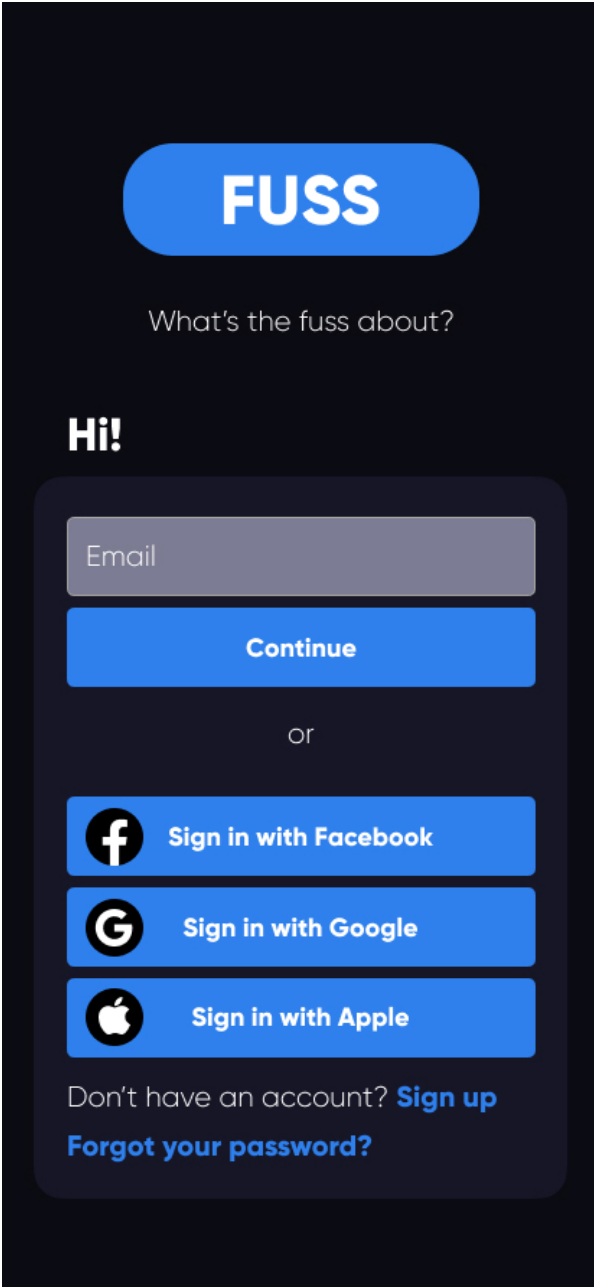


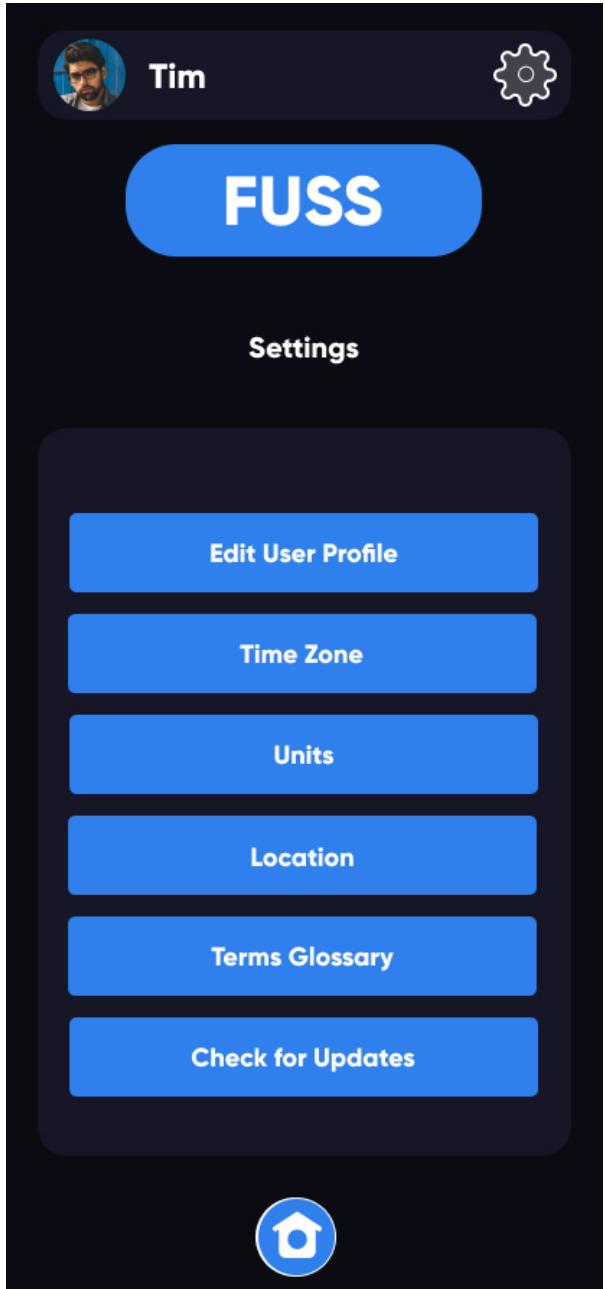
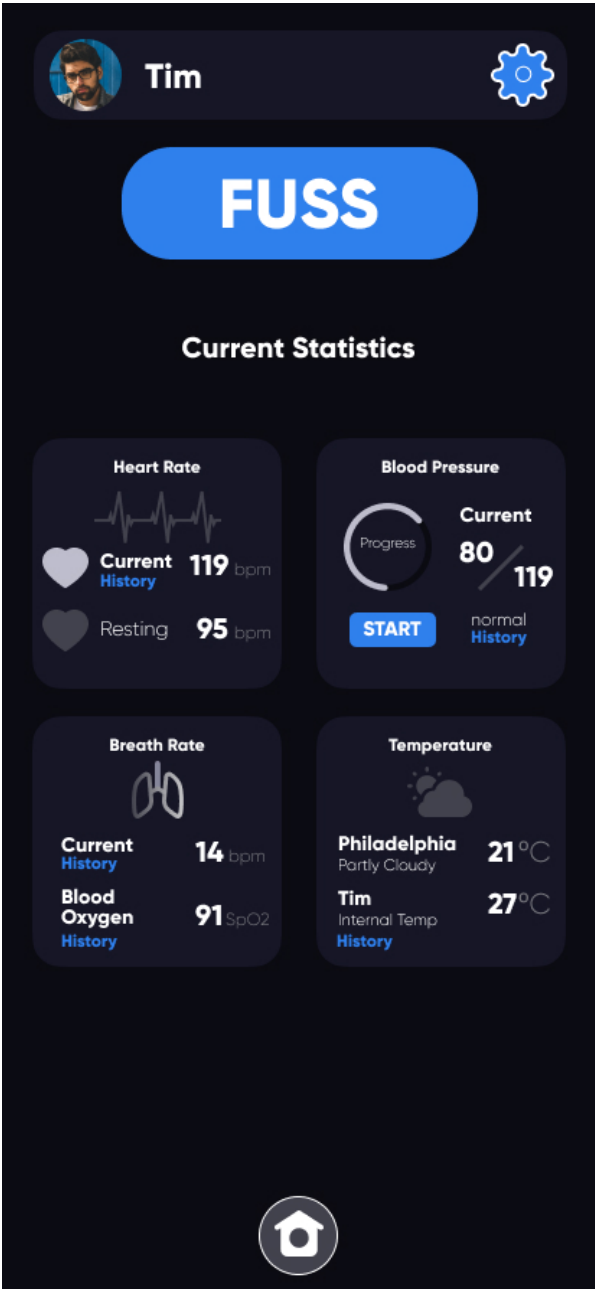
Iteration 2: Making it higher fidelity.





APPENDIX D: PROTOTYPE APPLICATION MID-FIDELITY SCREENSHOTS







Tim



FUSS

User Profile



Tim Smith

Age: 27

Height: 5' 10"

Weight: 86 kg

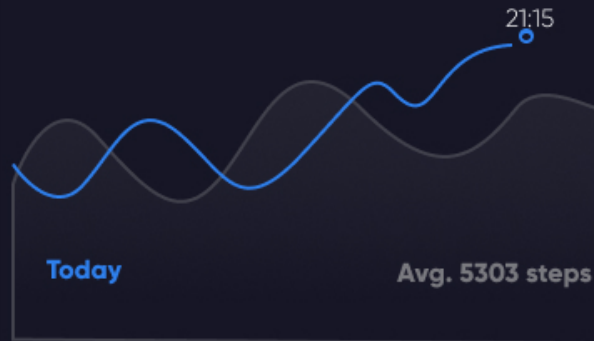
Lifestyle: Active

Activity:

8104 Steps

3h 25m

359 kcal



APPENDIX E: VIDEO

<https://drive.google.com/file/d/1X6TYCQmC8Sz4unnORpBT9KGe33I63che/view?usp=sharing>