PROJECT 3

“Fake Out” w/ AI

PREPARED FOR

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PREPARED BY

Team 08

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Introduction

This project is set against the backdrop of rapid growth in wearables and personal informatics, with device sales increasing from 170 million in 2018 to over 440 million in 2020. The challenge is particularly relevant as companies and insurance providers increasingly use these devices for employee health monitoring, while users often find ways to "fake out" their activity monitors.

The purpose of our research project is **to redesign a currently existing health monitor with the intent to improve the current state of user morale and mindset** surrounding these kinds of products. Our design team wants people to stop feeling like they need to fake their exercise for positive self-image and instead lead real healthy lifestyles. Thus, we have chosen to dive into **ways that *Fitbit* products can be improved for overall user health and motivation**.

Our team will work towards presenting a set of final deliverables including:

- **Digital Documentation** of our team's design process from start to finish
- **A Mid-Fidelity Mockup** of our design implementations
  - We plan for this to be a visual demonstration of our proposed alterations to the currently existing *Fitbit* app and tracker
  - **AI Implementation**:
- **An In-Class Presentation** that includes a slidedeck and a prototype and/or storyboard of our added features

Secondary Research

Purpose

To identify key features and pain points in modern fitness trackers, and how we could improve the experience. Secondary research was key for us to better understand our problem scope, and give validation for our design choices.

Research Summary

Wearable fitness technology, like *Fitbit* products, have become increasingly popular for tracking physical activity and health metrics. Devices like these use sensors to collect physical data for users such as steps taken, distance traveled, calories burned, sleep quality, and heart rate. The *Fitbit* app allows users to view the information logged by their wearable product. It gives them access to details about their progress, a goal setting feature, a nutrition tracker, and engaging social challenges. While fitness trackers offer many different benefits, research has shown that they can sometimes be inaccurate which turns people off from purchasing them. Despite this, they can still be effective tools for increasing awareness of and encouraging healthier behaviors through visual data and motivational features.

However, fitness trackers are not universally well-received. A lot of users report losing interest over time, feeling annoyed by constant reminders, or being discouraged rather than motivated. Studies indicate that behavioral reinforcement must be carefully designed, keeping in mind that too much pressure or excessive notifications can be counterintuitive. Positive reinforcement and personalized guidance have been found to be more effective in encouraging long-term change. Ultimately, trackers can be helpful, but tangible lifestyle changes are dependent on user motivation,

social support, and the thoughtful design of product engagement to incorporate these two factors.

***This research summary was written in tandem with ChatGPT, prompted with copies of each article summary, followed by "can you please summarize that into two brief paragraphs?"*
***Summaries of each article used can be found in the appendix.*

Important Takeaways

1. There is ongoing research about the **negative effects of WFT** (wearable fitness trackers) **inaccuracies on users**
2. Fitness apps with a **competitive component** stand out among others
3. Constant **demanding fitness reminders are found annoying** by users
4. **Positive reinforcement** is encouraging to users, but can lead to unhealthy behaviors if implemented carelessly
5. **About 25% of college students** use fitness trackers
6. **Gamified experiences** with **immediate, tangible rewards** encourage interactivity
7. The **four core features of the *Fitbit* app** are customization, useful content, journey tracking, and optional tailored suggestions

Fitbit App Evaluation

Users

Features

- Customizable …
    - description
- Articles about …
    - description
- Journey tracker …
    - description
- *Premium* tailored suggestions & insights
    - description

Effectiveness

Think about how to evaluate this unobjectively

Design Space

Problem Space

Fitness trackers are often used by individuals looking to improve physical health, lose weight, or build better habits. However, while initial adoption rates are high, engagement tends to decline over time. Many users either stop using the devices entirely or use them inconsistently, eventually leading to limited or no lasting impact on their fitness goals.

***Our problem framing activity can be found in the appendix.*

User Group

Our design group will be focusing on college students who are aiming to improve their physical health alongside their busy schedules.

Contextual Inquiries

Purpose

Insights

Questions

Takeaways

Final Product

Our Additions

- A vibration notification when users hit certain milestones
- Offering competition between users that have similar goals

AI Implementation

Individual Reflections

Team Member: Alex Kim
Reflection:

Team Member: Ashmi Roy
Reflection:

Team Member: Bobby Buch
Reflection:

Team Member: Raelee Lance
Reflection:

References

Frew, Holly. “Are Fitness Watches Motivating Users to Stick to Fitness Goals? Here’s What the Research Says.” *Georgia State News Hub*, Office of Communications & Marketing Robinson College of Business, 16 July 2024, news.gsu.edu/2024/01/22/fitness-watches/.

Kinney, D. A., Nabors, L. A., Merianos, A. L., & Vidourek, R. A. (2019). College Students’ Use and Perceptions of Wearable Fitness Trackers. *American Journal of Health Education*, *50*(5), 298–307. https://doi.org/10.1080/19325037.2019.1642265

Uclahealth. “Are Fitness Trackers Enough to Keep You Motivated and Turn Exercise into a Habit?” *UCLA Health*, 10 Feb. 2022, www.uclahealth.org/news/article/are-fitness-trackers-enough-to-keep-you-motivated-and-turn-exercise-into-a-habit.

OpenAI. (2023). *ChatGPT* (April 21 version) [Large language model]. https://chat.openai.com/chat

Team Contributions

Team Member: Alex Kim

- ❖

Team Member: Ashmi Roy

- ❖ Design Space
- ❖ Secondary Research on:
    - ➢ Validity of Fitness Trackers
    - ➢ Popular Features of Existing Fitness Trackers
- ❖ Problem Framing

Team Member: Bobby Buch

- ❖ Secondary Research on Positive Reinforcement
- ❖ Lit Review Table

Team Member: Raelee Lance

- ❖ Team Progress Manager
- ❖ Documentation Formatting
- ❖ Secondary Research on:
    - ➢ Fitness Trackers & College Life
    - ➢ Digital Positive Reinforcement
    - ➢ *Fitbit* current state
- ❖ Research Summary
- ❖ Problem Framing
- ❖ Qualtrics Survey

Appendix

Figures for Reference

Figure 1: Current State of Fitbit Application

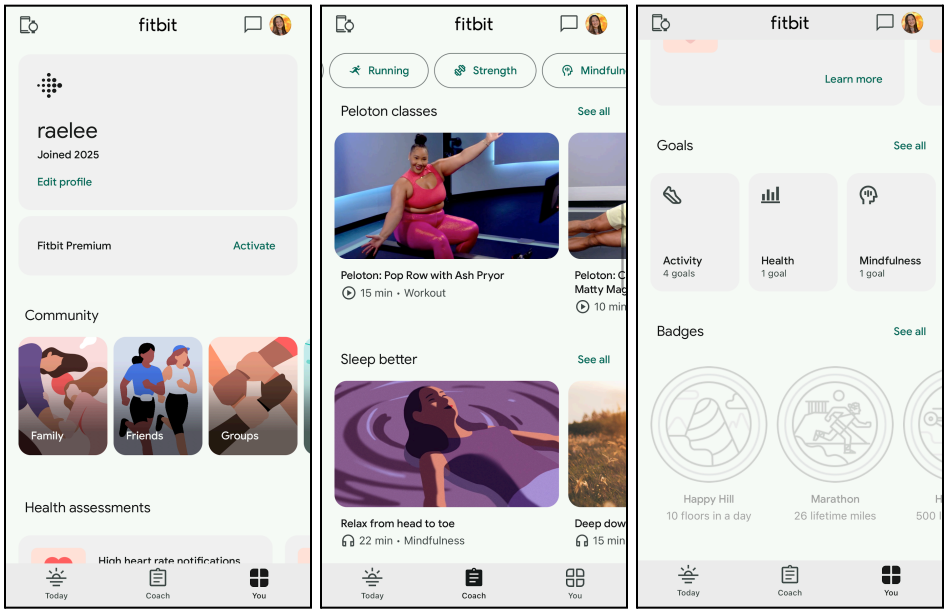

Figure 2: Strava Application

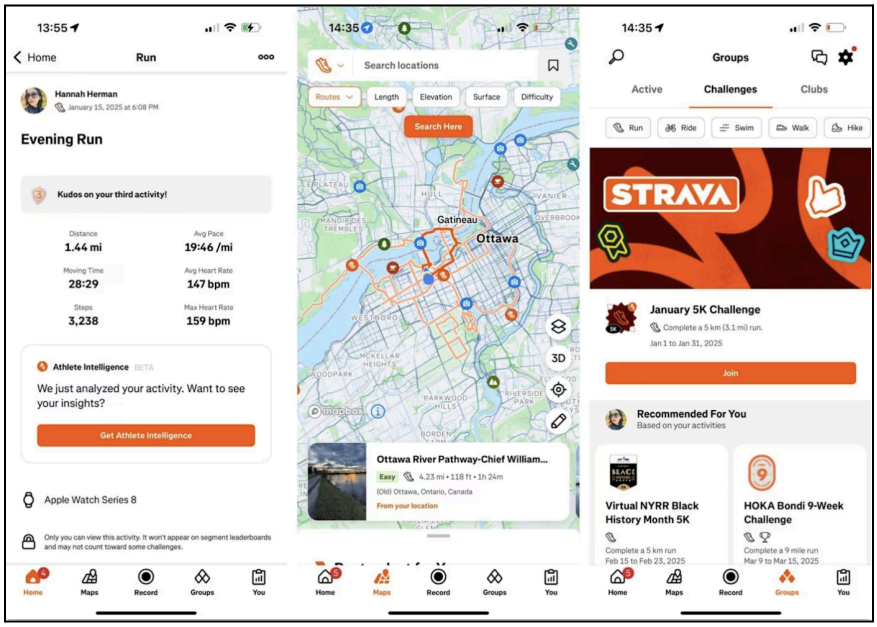

Figure 3: Problem Framing Activity

Questions	Details
Problem Space: What is the problem in my own words?	People aren't using fitness trackers properly, they are also losing motivation to continue. Our team is planning on focusing on college students as our user group.
User Focused: Who is the problem affecting	This is affecting people that use fitness trackers and people that want to exercise but don't know how to track their progress or are unmotivated. This also affects fitness tracker companies who depend on people using their products.
Appreciative System: How would I solve this problem in a way that appeals to me	We want to implement a reward system into the product and the app that motivates users to complete their goals. We have also considered adding a competitive aspect that may resemble a game for users to participate in that could make exercising more enticing.
Constructivism: What kind of experience can I create that includes elements of what I know above?	We can include these features in the product app to persuade users to use their fitness trackers more. This could be something as simple as a buzzing feature for every goal reached, or putting in a competitive aspect to push users to reach their goals.
Cultural Knowledge: Will this solution work in this context?	Rewards push people and have a positive influence on their minds, along with this it is motivating. Competition also pushes people to reach their goals
Design Statement: Combine the content of 1 & 2.	College students strive to maintain a healthy lifestyle that upholds their academic success. However, it can be difficult to remain motivated to workout with such a busy schedule.
Design Question: Combine 4 & 5 into a question	What rewards would best motivate people to pursue a healthier lifestyle using fitness trackers?

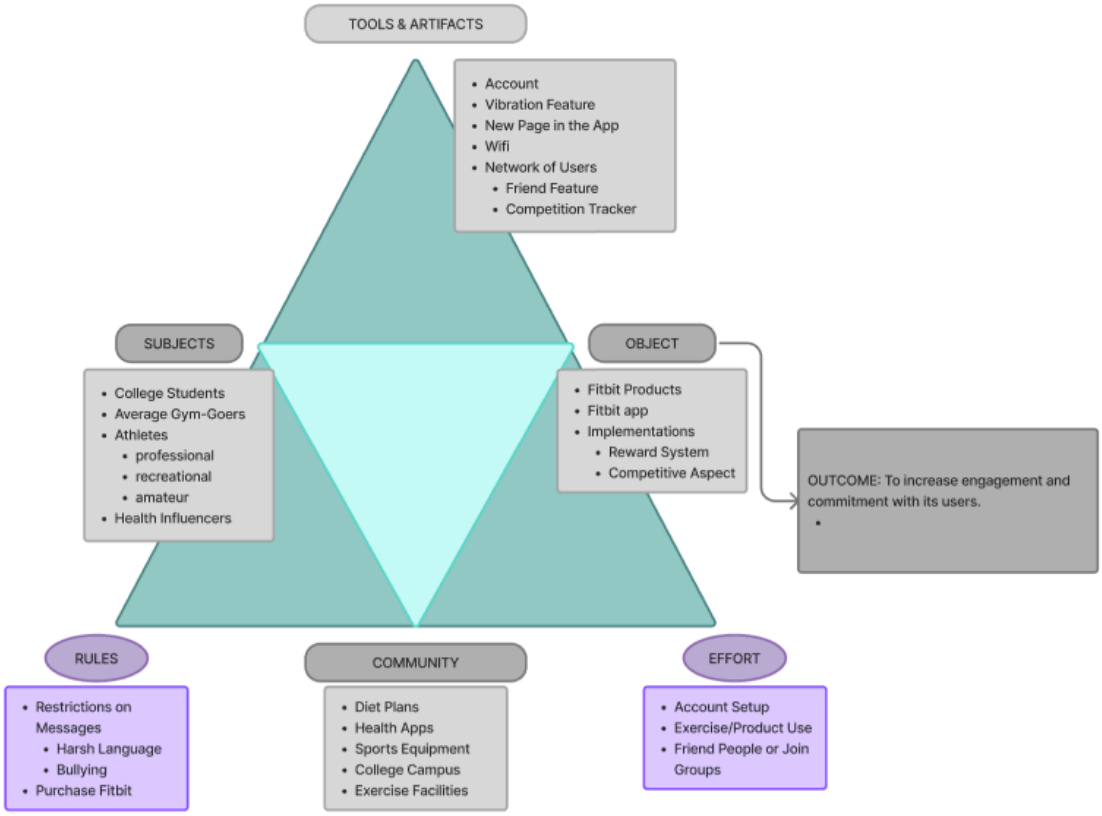

Figure 4: Activity Theory Diagram

Secondary Research

Team Member: Alex Kim
Topic: *Fitbit* Features & General Use

Article 1 Summary

Fitbit is a leading brand of wearable fitness technology that offers various activity trackers designed to improve users' fitness and health. These devices track essential metrics like daily steps, distance traveled, calories burned, and sleep patterns, while more advanced models include heart rate monitoring, GPS tracking, movement reminders, and smartphone notifications. Users can view their activity data directly on the device's screen through taps, wrist

movements, or touchscreen interactions. The devices sync with smartphones or computers via Bluetooth, allowing detailed activity tracking through the Fitbit app. The app provides additional features like nutrition tracking, goal setting, badge achievements, and social challenges with other Fitbit users, creating a comprehensive health monitoring ecosystem.

Link:
https://edu.gcfglobal.org/en/wearables/what-is-a-fitbit/1/

Article 2 Summary

Fitness trackers are wearable devices that monitor fitness-related metrics through various sensors like accelerometers, GPS, and heart rate monitors. Typically worn on the wrist, these devices use sophisticated technology to process data through multiple layers, from collection to user interface presentation, tracking comprehensive physical activity metrics (steps, distance, calories) and health indicators (heart rate, sleep patterns, stress levels). The technology works by combining various sensors to measure movement, physiological signals, and environmental factors, all processed through an integrated system that connects to smartphones for detailed analysis and visualization. These devices offer significant benefits through continuous health monitoring, personalized workout recommendations, and data-driven insights, allowing users to track their progress, set achievable goals, and make informed decisions about their health and fitness routines, ultimately becoming valuable tools for anyone looking to maintain or improve their overall wellness.

Link:
https://canyon.eu/blog/what-is-a-fitness-tracker-and-how-does-it-work/

Team Member: Ashmi Roy

Topic: Validity and Reliability of Fitness Trackers/Products

Article 1 Summary

The 2020 systematic review on wearable devices found that commercially available brands like Fitbit, Apple, Garmin, and Samsung generally provide accurate step counts and, to a lesser extent, heart rate readings in controlled settings, but are unreliable for estimating energy expenditure. While step count measurements were often within ±3% error, heart rate data showed more variability, with Apple and Garmin performing best. Energy expenditure estimates were largely inaccurate across all brands. Although inter-device reliability was strong, most studies were small and conducted in lab environments, and many devices reviewed are now outdated, emphasizing the need for ongoing validation research.
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC7509623/

Article 2 Summary
In its 2025 roundup, Zapier highlights nine top fitness apps tailored to diverse user needs. Strava stands out for its competitive and social features, ideal for those who thrive on community challenges. Apple Fitness seamlessly integrates with the Apple ecosystem, offering guided workouts and real-time metrics for iOS users. Fitbit serves as an accessible entry-level option with comprehensive tracking and wellness insights. PUSH caters to strength-focused individuals, providing data-driven feedback to optimize performance. Other notable mentions include apps designed for habit-building, personalized coaching, and holistic health tracking, ensuring there's a suitable choice for every fitness journey.
Link: https://zapier.com/blog/best-fitness-tracking-apps/

Team Member: Bobby Buch
Topic: (1) Societal Status Surrounding Fitness Trackers; (2) Reward Features in Fitness Trackers

Article 1 Summary

Fitness trackers may not be as useful as we think. Many people report losing interest in them, finding it more annoying than useful, and barely losing weight with its aid. There's only so much technology can do and at some point it's up to the user to be responsible and take action for their own life. Disciplining yourself to exercise daily can be demanding; people benefit from having rewards, encouragement, or other people to suffer together with. What people don't need is an annoying reminder telling them what to do. Most people report that the reason they stopped using their health trackers was due to them feeling demanded to exercise. That the constant reminders and notifications were more agonizing than encouraging. Positive reinforcement can be a fantastic way to encourage people to keep moving; however, it can easily be overdone and instead make people quit sooner if done incorrectly.
Link: news.gsu.edu/2024/01/22/fitness-watches/

Article 2 Summary

A multitude of fitness trackers give its users some sort of reward or fanfare for completing a milestone, reaching a goal, dropping their weight, etc. Many health apps do this by praising their users with positive messages for completing certain actions. A year long study was conducted with 56 adults who were divided into a control group and intervention group. All participants were given an Oura smart ring, which monitors sleep and activity, the control group received general wellness education for three months while the intervention group received interactive behavior modification through a smartphone app. The interactive group also received guided message feedback, which had personal UCLA researchers tracking their data and sending them personalized texts. "In the first three months, the control group saw little change, while the intervention group made significant improvement in areas ranging from amount of exercise to body fat percentage, aerobic endurance and sleep quality as measured by how quickly they fell asleep".

Link:
https://www.uclahealth.org/news/article/are-fitness-trackers-enough-to-keep-you-motivated-and-turn-exercise-into-a-habit

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Team Member: Raelee Lance
Topics: (1) The Role of Fitness Trackers in College Life; (2) Positive Reinforcement in Digital Products; (3) Current State of *Fitbit* Products

Article 1 Summary
In the study described in this article, only 22.5% of participants, all of whom were college students, were found to be using a wearable fitness tracker. The most common reason why these students use a fitness tracker is to "increase their physical activity." Other less common reasons were "to improve their workouts, to lose weight, and to monitor their sleep." Additionally, about 88% of the participants reported using a tracker to record their steps and distance traveled. Some of them also said that they want to track how many calories they burn, how long they sleep, and their heart rate. Another feature that was noted as important is silent alarms that the tracker can administer.
Link: https://www.tandfonline.com/doi/full/10.1080/19325037.2019.1642265

Article 2 Summary
This article notes that a lot of research backs up the concept that gamified experiences facilitate "competition and achievement through progression-based rewards." It also highlights that immediate, visible and tangible rewards are the most effective at getting users to interact with an application. Notifications containing an informational message were found to be the most successful way to accomplish this. Furthermore, "combining affordances in gamified apps increases their efficiency."
Link:
https://www.emerald.com/insight/content/doi/10.1108/ejm-06-2021-0388/full/html#sec22n

Article 3 Summary:
The *Fitbit* app currently has four main feature groups: customization, useful content, journey tracking, and a premium option to receive tailored suggestions. More specifically, users without premium can log their body metrics and preferences, view health and fitness content, and set goals that the app can help check progress.
Link: https://store.google.com/magazine/fitbit_app?hl=en-US

Literature Review

Research Keywords	Database	Articles/Citation	In-Text Citation	Article Summary
General Use	Google Scholar	"Wearables: What Is a Fitbit?" *GCFGlobal.Org*, GCFGlobal Learning, edu.gcfglobal.org/en/wearables/what-is-a-fitbit/1/. Accessed 21 Apr. 2025.	GCFGlobal, 2022	What are the usual features that are associated with a fitness tracker; Heart rate monitor, step counter, weight tracking.
Fitbit features	Google Store	Google. "Fitbit App." *Google Store*, https://store.google.com/magazine/fitbit_app?hl=en-US. Accessed 18 Apr. 2025.	(Google)	This is a catalog of *Fitbit* products sold through Google and their most notable, marketed features.
Negative Feedback	Google Scholar	Frew, Holly. "Are Fitness Watches Motivating Users to Stick to Fitness Goals? Here's What the	(Frew, 2024)	Fitness trackers often have positive messages and reminders to exercise, but this is a very

Research Keywords	Database	Articles/Citation	In-Text Citation	Article Summary
		Research Says." *Georgia State News Hub*, 16 July 2024, news.gsu.edu/2024/01/22/fitness-watches/.		delicate system that can easily be overdone. Many people report feeling too pushed upon and frustrated with the constant nagging of their apps.
College students and health trackers	Google Scholar	Kinney, D. A., Nabors, L. A., Merianos, A. L., & Vidourek, R. A. (2019). College Students' Use and Perceptions of Wearable Fitness Trackers. *American Journal of Health Education*, *50*(5), 298–307. https://doi.org/10.1080/19325037.2019.1642265	(Kinney, 2019)	A study found that about a fourth of college students report owning a health monitor. This article dissects the most prominent reasons why these students decided to get one, and what the most relevant components are to them.
Validity	Google Scholar	Fuller, Daniel, et al. "Reliability and Validity of Commercially Available Wearable Devices for Measuring Steps, Energy Expenditure, and Heart Rate: Systematic Review." *JMIR mHealth and uHealth*, U.S. National Library of Medicine, 8 Sept. 2020,	(Eysenbach, 2020)	While very popular, fitness trackers have a margin of error around 3%, but science tells us that this number isn't necessarily true and many fitness trackers might not be correct at all!

Research Keywords	Database	Articles/Citation	In-Text Citation	Article Summary
		pmc.ncbi.nlm.nih.gov/articles/PMC7509623/.		
Product	Google Scholar	Herman, Hannah. "The 9 Best Fitness Apps of 2025." *Automate Your Work Today*, Zapier, 31 Jan. 2025, zapier.com/blog/best-fitness-tracking-apps/.	(Herman, 2025)	This article looks into the advantages of different health trackers; such as Apple's easy user interface, the competitiveness of Zapier, and Fitbits detailed data.
Consumer behavior; Push notifications; Mobile applications; Motivational affordances; Gamification	Google Scholar	Kunkel, T., Hayduk, T. and Lock, D. (2023), "Push it real good: the effects of push notifications promoting motivational affordances on consumer behavior in a gamified mobile app", *European Journal of Marketing*, Vol. 57 No. 9, pp. 2592-2618. https://doi.org/10.1108/EJM-06-2021-0388	(Kunkel, 2023)	This article elaborates on how gamifying digital apps can affect user interaction. More importantly, it goes into detail about designing more positively influential reward systems.
Features	Google Scholar	Ryzhova, Tatyana. "What Is a Fitness Tracker and How Does It Work?" *CANYON Blog*, 15 Feb. 2024,	(Ryzhova, 2024)	This article focuses on what people typically use when wearing a FitBit or any general health tracker

Research Keywords	Database	Articles/Citation	In-Text Citation	Article Summary
		canyon.eu/blog/what-is-a-fitness-tracker-and-how-does-it-work/.		
Fitness; Healthy lifestyle;	Google Scholar	Uclahealth. “Are Fitness Trackers Enough to Keep You Motivated and Turn Exercise into a Habit?” *UCLA Health*, 10 Feb. 2022, www.uclahealth.org/news/article/are-fitness-trackers-enough-to-keep-you-motivated-and-turn-exercise-into-a-habit.	Uclahealth, 2022)	Fitness trackers often provide a sort of reward for the user's efforts. An experiment conducted at UCLA determined just how effective rewards go to encouraging weight loss.