TikTok-Brain

Lo-fi Prototyping and Usability Testing

Mission Statement

To promote stair safety by leveraging the captivating power of video, delivering crucial safety messages in an engaging and distraction-free platform.

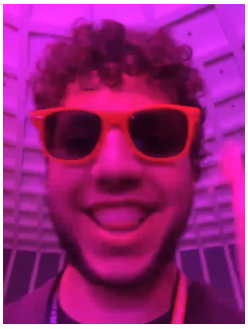
Value Proposition

Delivering mesmerizing, randomized videos paired with essential safety advisories, TikTok-Brain simplifies social media to focus solely on enhancing personal safety without the clutter of likes, comments, or shares.

Problem / Solution Overview

Many individuals are unaware of the risks associated with inattentive stair use. Traditional safety messages often fail to engage audiences, leading to continued accidents and injuries. TikTok-Brain combines the engaging nature of short-form video content with critical safety messaging. By removing typical social media distractions, the app ensures that users receive and retain important information about walking safely on stairs.

Our Team



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1 Introduction

Distracted walking has become a significant safety concern, particularly on stairs where attention is crucial. Traditional social media platforms, designed for high engagement, inadvertently increase these risks by encouraging users to focus more on their screens than their surroundings.

TikTok-Brain is designed to counteract this issue by combining the engaging nature of video content with crucial safety messages about walking safely on stairs. This app simplifies the social media model: it removes likes, comments, and shares, focusing solely on delivering safety-oriented content through mesmerizing, randomized videos paired with safety advisories.

2 Method and Review

For identify the exect problem and developing a solution, we used the double diamond method. The double diamand method is orginally a part of the design thinking business and has a user-oriented approach. Therefore one of its key elements are mockups and prototypes, which are needed to get real user feedback in the ongoing development process. The double diamand method has four phases guiding the team from problem identify to a real solution.

The first phase is the 'Discover'-Phase, which is meant for getting more insight into the problem and gather information that may be essential for developing a solution. In our project the process began with an individual brainstorming phase, where each team member independently generated ideas. These ideas were then collectively refined using digital tools such as LaTeX, Gimp, and Krita, resulting in a diverse array of 25 to 30 potential concepts. Moreover we explained each other why we created given ideas always focusing on the expected user behave.

Finished with the first phase, we started right into the second phase of the double diamond method. In the 'Define'-Phase the gathered information should be filtert and first possible solutions reconsidered critical. To ensure our ideas were aligned with user needs and expectations, we proceeded to create and conduct a detailed survey comprising 20 questions, which was administered to 30 participants using Telekom Vote 2 and WhatsApp to reach out to the participants. The results helped constructing personas and refine our initial ideas. With a solid understanding of our user base, we evaluated the brainstormed ideas through a structured pro-contra analysis, taking into account the feedback and personas developed earlier. This phase of assessment was supported by Markdown and LaTeX, allowing us to narrow down our options to three final ideas.

As part of the third phase, the 'Develop'-Phase we started the actual design process. All three ideas were laying down to a easy user experience, which was also the key aspect while designing. Subsequently, we moved to visually conceptualize these ideas through sketches and storyboards, utilizing Gimp, other graphic tools, and Kdenlive. This step was to visualize the sequence and flow of interactions, which were used for the later stages of prototyping.

In a presentation to gather user feedback, participants evaluated the top three ideas from each of six groups, totaling 21 ideas. Each of the 25 attendees had two votes to allocate, allowing them to identify the concepts they found most compelling. This iterative process of development and refinement led to the selection of the most promising prototype based on its functionality and user feedback.

In the last phase, the 'Delivery'-Phase we fully completed our most promising prototyp and did some improvements regarding design and interactions of the prototyp based and the user feedback. The final stage of our project also involved the creation of professional presentations and a comprehensive final report, crafted using PowerPoint and LaTeX. These documents provided a detailed overview of the project process, from the initial concept to the final evaluation of the prototype.

2.1 Review

The Double Diamand method is suitable for developing a lofi prototype. The individual phases and steps felt intuitive and promoted consistent progress. The method does not specify concrete tasks, but divides the entire development process into thematic phases. As a result, it requires minimal organisational time. The 'Discover' and 'Define' phases provide a good basis for inventing new creative ideas and rethinking and redefining old ones. Through these phases, you iteratively reflect on what the user wants and how the user acts. This allows ideas to be adapted, improved and reinvented. This consistently and proactively prevents a solution from being developed that does not appeal to the user. To summarise, the Double Diamond method felt intuitive and very agile when developing a Lofi prototype. Since there is no strict

procedure, but rather a generic approach, the Double Diamond method feels more like guidelines that teams can follow to develop a product or solution that is orientated towards the users.

3 Results

This chapter presents the progression from the already refined concept sketches to the final prototype, detailing the design decisions, evaluations, and functionality development.

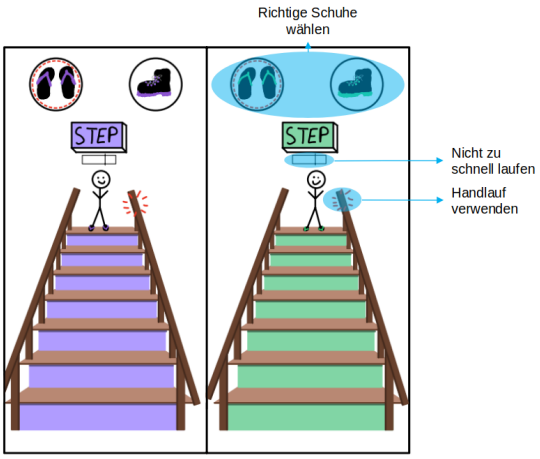
3.1 Concept Sketches

The top 3 of our concepts were:

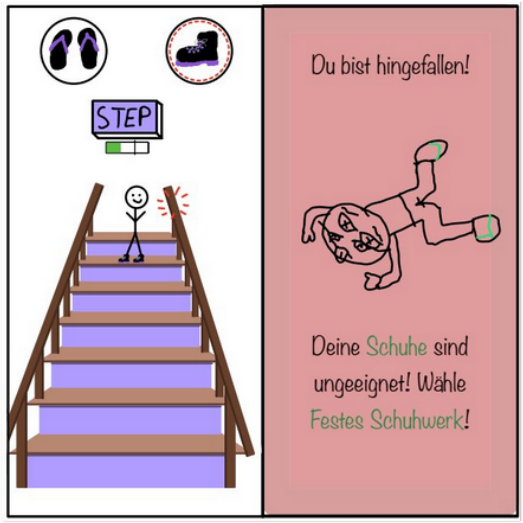
1. **Stair Master:** is a competitive stair-walking game designed for two players. Participants race against each other to see who can climb stairs the fastest while maintaining safety. The game emphasizes decision-making by introducing factors such as footwear selection and the use of the handrail. Players must strike a balance between speed and caution to succeed. The game aims to engage users with an entertaining approach to promoting stair safety while subtly educating them on the importance of safe practices.

2. **StAIr:** is a humorous and interactive tool that generates AI made images of people falling down stairs. While this concept plays on humor, it serves as a reminder of the consequences of neglecting safety. The image-generation process integrates safety messages, ensuring users receive valuable advice while engaging with the entertaining visuals. By combining amusement with awareness, StAIr provides a unique way to stress the importance of staying vigilant on stairs.

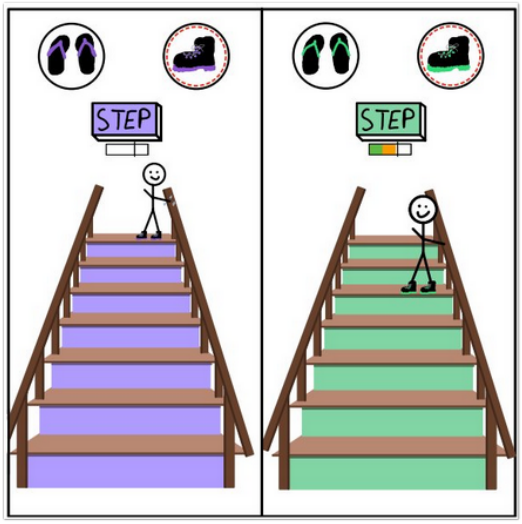
3. **TikTok-Brain:** Inspired by apps like TikTok, TikTok-Brain is a short-form video scroller that engages users with engaging, randomized videos displayed at the bottom of the screen. Safety messages are prominently displayed at the top, creating a dual focus that both entertains and educates. This concept eliminates traditional social interactions such as likes, comments, and shares, simplifying the experience to prioritize safety messages.



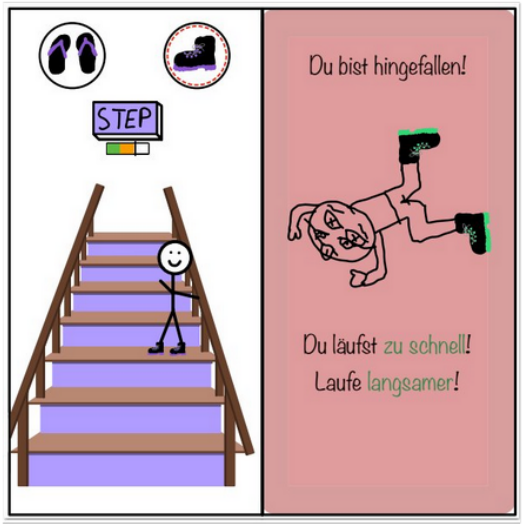
(a) Tutorial Screen



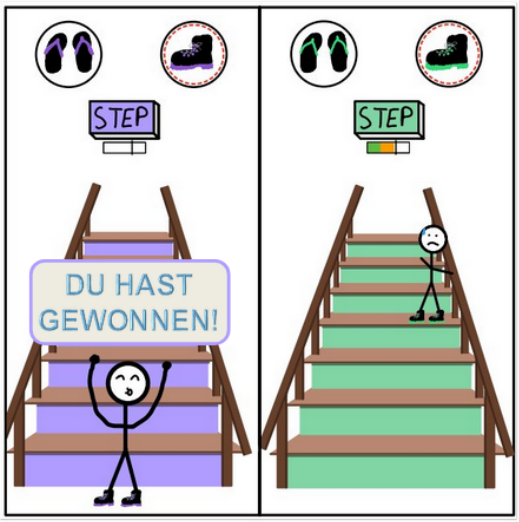
(b) Death Screen



(c) Progressing Gamestate



(d) Second Death Screen



(e) Winning Screen

Figure 1: Stair Master Game

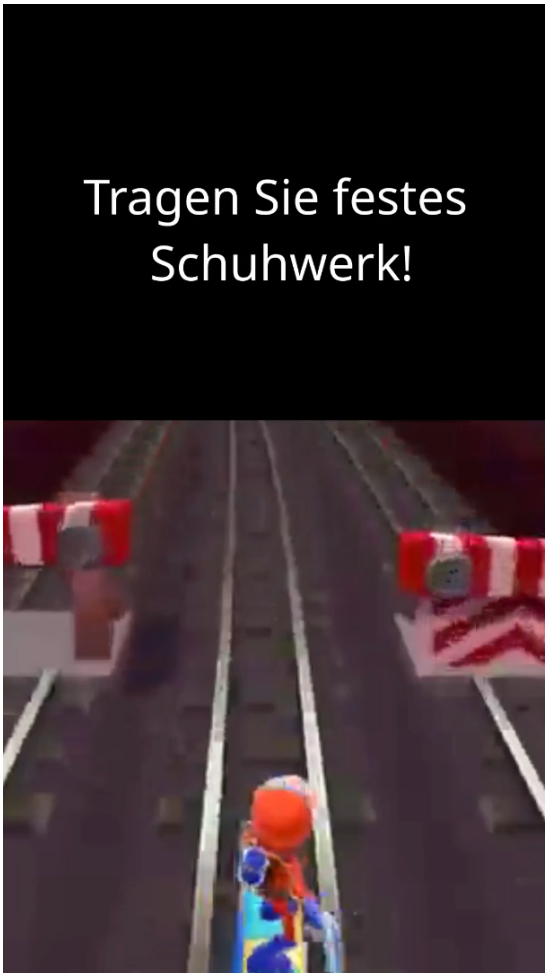
(a) Idle Screen

(b) Loading Screen

(c) Image presentation Screen

Figure 2: StAIr AI Image Generation

(a) Video before Swipe



(b) Video after Swipe

Figure 3: TikTok-Brain

3.2 Selected Concept Designs

This section draws from pro-con analysis tables derived from user feedback collected in earlier surveys. It details the advantages and drawbacks of the designs for Stair Master, StAIr, and TikTok-Brain. The feedback-driven tables offer essential insights into user preferences and engagement, helping to explain the selection process and potential impact of each design on promoting safety awareness. This evaluative approach emphasizes the user-centered design process and highlights the importance of empirical feedback in refining and finalizing the concept designs.

In addition to the survey, a presentation followed by a voting session was conducted, where Stair Master accomplished 1 vote, StAIr accounted 2 votes, and TikTok-Brain achieved 11 votes. Having 22% of the total votes positioned TikTok-Brain as the most favored concept among all 21 design concepts presented.

Stair Master Game (1 vote)

Pros	Cons
• The majority enjoys playing minigames • Social Gaming Interest • Gaming Engagement	• Does not catch much interest • Few positiv feedback

Table 1: Pro + Con analysis for Stair Master

StAIr AI Image Generator (2 votes)

Pros	Cons
• Humor Preference • Catches attention because of AI use • Simple User-Interface	• Humor is subjective • Potential Insensitivity • Attention may only focus on AI

Table 2: Pro + Con analysis for StAIr

Stair TikTok-Brain (11 votes)

Pros	Cons
• High Engagement with Memes and Humor • Everyone spends time on short-form streamer daily • Clear Warning Placement	• Lower Engagement with Short-form Video • Attention may only focus on videos

Table 3: Pro + Con analysis for TikTok-Brain

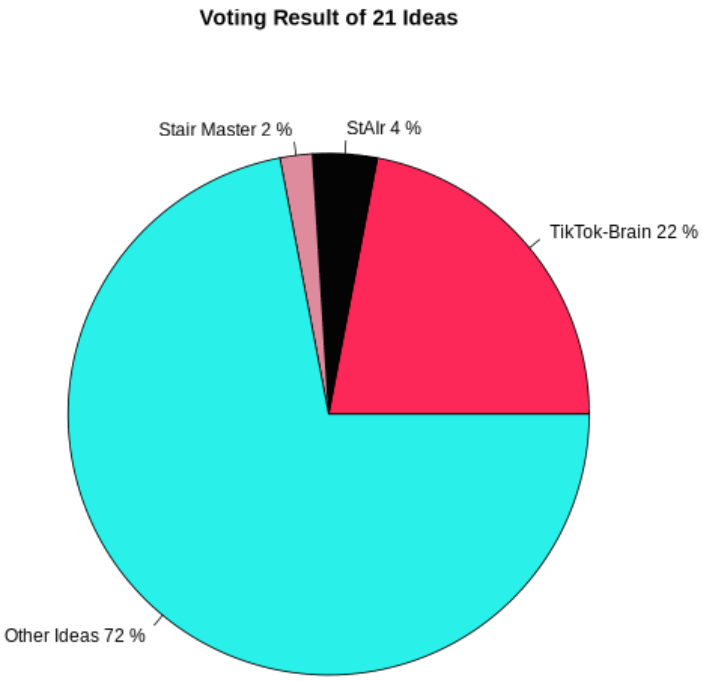
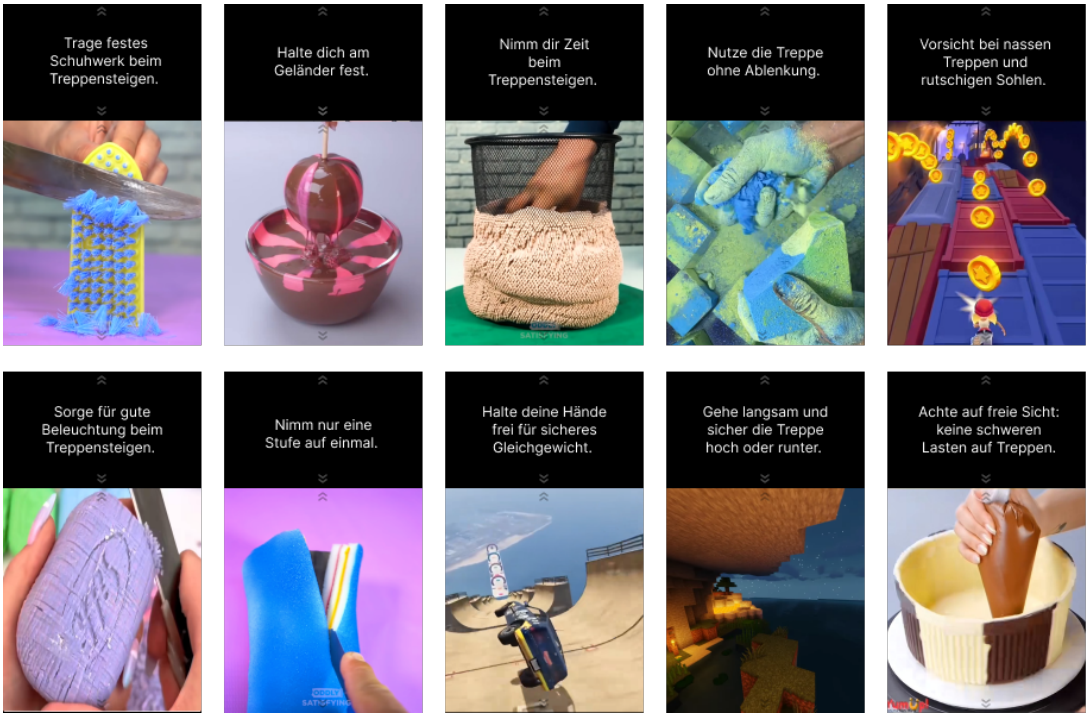


Figure 4: Presentation Voting Results

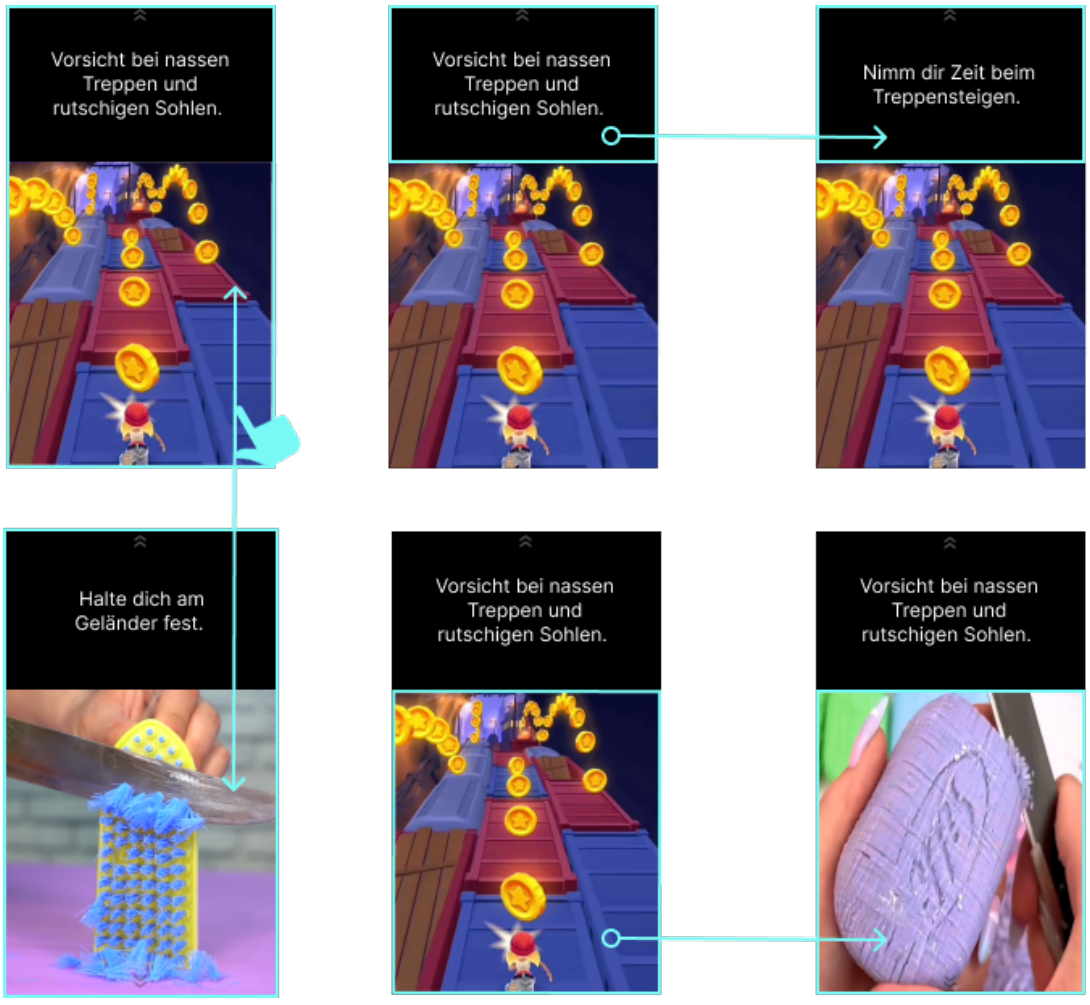
3.3 Prototyping

We selected TikTok-Brain as the final design concept because it aligns strongly with user feedback, engagement potential, and our core objective of promoting safety awareness. This decision was informed,

as already mentioned in the previous section, by a thorough pro-con analysis based on user feedback from earlier surveys and validated by a voting session involving all 21 design concepts.



(a) Storyboard



(b) User Flow

Figure 5: Lo-fi Prototype of TikTok-Brain

Component	Description	Functionality
Video Display Area	Fullscreen area to show videos.	Displays a single video at a time, taking up the bottom part of the screen.
Swipe Navigation	Gesture-based navigation for moving through videos.	Swiping up loads the next video; swiping down loads the previous video.
Random Video Loader	Logic that fetches a random video to display.	Randomly selects and loads a video from the video pool whenever a new video is required.
Text Overlay Area	Area at the top of the screen for text that accompanies each video.	Displays a random line of text (e.g., a phrase or quote) that's paired with the video.
Video-Text Randomizer	Logic that pairs random videos with random text.	Ensures that each video is matched with a different text overlay each time it appears, maintaining freshness.
Interface Background	Background color or visual design behind the video display.	Provides visual consistency or mood but stays unobtrusive to keep focus on video and text content.
Loading Indicator	Small icon or animation that shows when new content is being loaded.	Briefly appears when the app fetches a new random video or reloads the feed.
No Interaction Buttons	No buttons for like, comment, or share, emphasizing simplicity.	Only swipe gestures are recognized; no additional UI elements for social interactions.
Error Handling Display	Fallback message or visual when loading fails.	Displays an error message if a video fails to load, with a prompt to restart the application.
Auto Swipe Animation	Animation that mimics a swipe if there's no interaction for a while.	After a set period of inactivity, automatically performs a swipe animation to move to the next video, keeping the experience engaging.

Table 4: Functionality of Design Interface Components

4 Project Report

4.1 Lessons Learned

Throughout the TikTok-Brain project, there have been several valuable insights that will influence future work practices. The use of iterative design and continuous user feedback have greatly helped to improve our concept and demonstrated that early and frequent user involvement leads to more effective solutions. The structured approach for the generation of ideas, starting from individual brainstorming before moving to collective refinement, has shown how the combination of independent thinking with collaborative evaluation can create more diverse and innovative concepts. A particularly valuable lesson was the importance of simplification: by removing traditional elements of social media such as likes and comments, we have created a more focused user experience that better serves our main goal of promoting security. The progresson from survey-based research to persona development, followed by a structured

pro-contra analysis, has provided a solid framework for the decision-making process which can be applied to future projects. We have also learned that even seemingly simple applications benefit from in-depth usability tests, as user interactions often reveal unexpected insights into interface design and content delivery. The project highlighted the challenge of balancing engagement with educational content and taught us that entertainment and learning are not neccessarily mutually exclusive when properly integrated. Furthermore, the experience of working with various digital tools (LaTeX, Gimp, Krita) has emphasized the importance of choosing suitable technologies for different phases of any project. Moving forward, the creation of detailed documentation throughout the development process, and not just in the end, will be essential to maintain the clarity of the project and allow effective team communication.

4.2 Capacity Plan

One significant aspect that emerged during the planning and execution phases of our project was the initial miscalculation of available capacity. While the project plan was developed with the assumption of a maximum capacity of 200 hours, we discovered during implementation that the actual working capacity was only 160 hours. This discrepancy necessitated adjustments in time allocation and prioritization across various tasks. The detailed breakdown of planned versus actual time, along with results for each task, is presented in Table 5.

The table highlights variances in specific activities where the actual time was either reduced due to capacity constraints, required less time than anticipated, or exceeded the plan due to unforeseen complexities. For instance, while sketching and storyboarding were initially planned for 30 hours, only 12 hours were spent due to reprioritization. Similarly, the time allocated to presentations and reports was significantly reduced due to the shorter presentation time, which was only discussed after the capacity plan was created. Despite these challenges, the adjustments ensured that the project objectives were met within the revised capacity limits.

Tasks	Results	Planned Time	Actual Time
Idea Development	25 - 30 ideas	26 hours • 20-30h idea development • 6h refinement	29 hours • 20h idea development • 9h refinement
Creating and Conducting Interviews	20-question interview, Personas	12 hours • 4.5h create interview • 1.5h conduct • 3h analyze • 3h Personas	13 hours • 5h create interview • 2h conduct • 3h analyze • 3h Personas
Pro - Con and Narrowing Down	3 final ideas	7.5 hours • 6h Pro - Con analysis • 1.5h narrowing down	6 hours • 5h Pro - Con analysis • 1h narrowing down
Sketches and Storyboards	Detailed storyboards	30 hours • 15h sketches • 15h storyboards	12 hours • 12h sketches
Prototype Development and Evaluation	Best prototype selected	24 hours • 9h creation • 15h evaluation and finalization	21 hours • 9h creation • 12h evaluation and finalization
Presentations and Report	Professional presentations and final report	74 hours • 30h first presentation • 24h final presentation • 20h report creation	58.5 hours • 13.5h first presentation • 9h final presentation • 36h report creation
Buffer		∼25h	∼20.5h
Total Time		∼173.5h	∼139.5h

Table 5: Capacity plan

4.3 UX Challenges

Developing a TikTok-like application to promote stair safety awareness presented several unique UX challenges that required careful consideration. First, understanding the user was not a trivial task. As described earlier, conducting surveys, creating personas, and presenting ideas with a vote helped enormously in understanding user needs.

A major challenge was balancing engagement with awareness. The captivating nature of video content can distract users from the security message at the top of the screen. While this may be true, this type of video has proven that after a period of time, the user will eventually look up the safety tip.

Another challenge was to ensure the clarity of the safety message. Users may find it difficult to focus on or understand the text while captivated by the video. The safety message needed to be concise, visually distinct, and easy to read, using large fonts, high contrast, and plain language.

A potential risk was that the application might distract the stair walker, increasing the likelihood of an accident. To mitigate this, the screen is positioned off to the side of the stairs so that the captivating video is not visible while the user is on the stairs. Accessibility was another critical factor. Users with visual impairments or cognitive disabilities may find it difficult to engage with the content. Unfortunately,

this is an issue that this idea cannot address.

While social features such as likes and comments are excluded for simplicity, this could lead to a lack of interactivity, potentially reducing user engagement. Alternative forms of interaction, such as swiping through safety messages or an auto-playing video queue, can provide a sense of activity without overwhelming users.

Content fatigue is another challenge, as repeated exposure to similar videos and messages can lead to disengagement. To address this, the video library and safety messages should be regularly updated with varied content.