SafeRoutes – Be Free and Safe in Istanbul Mobile Application Project
CS 549 – Human Computer Interaction

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Milestone 1- Design Thinking and Implementation

In our project proposal, we reviewed existing application designs for women's urban safety, such as SafetyPin. These instances demonstrated how people rely on crowd-informed safety advice when navigating new places. This made us realize that we needed to comprehend the fundamental interactions that would make people feel supported while navigating before developing intricate interfaces. For this reason, we began our design process with paper-based low-fidelity prototyping, which allowed us to swiftly consider the main concepts without worrying about technical or visual specifics.

At this stage, we created hand drawn screens that mapped out the core experience of our mobile application, SafeRotes. These paper sketches (attached in the file) covered the main screen, the route discovery flow, the safety alert creation process, the end-route evaluation screen, and additional menu structures such as the Profile, More Options, and Forum sections. Seeing the design on the paper made it easier for us to notice missing steps and correct the order of interactions. It also helped us test different arrangements and reorganize parts of the flow when something did not make sense. Beginning on paper gave us a clear structure to build on before moving to tablet drawings and more detailed digital high-fidelity prototypes.

After this stage, we continued by creating a similar flow and structure via the drawing tablet (attached in the file). We firstly draw pages demonstrating the evolution of the main screen and the iterative map interface. They feature a clear map view with prominent toggle switches for "Safest" and "Shortest" routing modes, addressing the user need for prioritizing safety over speed. Other pages are the navigation and safety visualization ("Start your journey" confirmation, reports nearby alerts, community ratings), reporting systems (a clear checklist format for users to report risks such as "being followed," "verbal harassment," or "too dark/isolated"), and community forum including feed, allowing users to share qualitative advice, complimentary to quantitative map data.

Building on the paper and tablet sketches, we then translated our ideas into a mid-fidelity interactive prototype in Figma (link). As opposed to concentrating on final colors or branding in this round, we focused on developing a uniform visual structure and reusable components. To ensure that changes made in one area could be replicated throughout the prototype, we created

fundamental styles for typography, buttons, cards, map containers, and bottom sheets and utilized these elements across all displays.

The current Figma file includes mid-fidelity versions of the main flows we had drawn by hand:

- the **home map screen** with search bar, current location indicator and "Nearby alerts" card,

- the **route selection flow**, where users can compare safest, balanced and shortest routes before starting navigation,

- the **navigation screen** with turn-by-turn instructions and options such as "Report route",

- the **safety alert flow**, implemented as a two-step bottom sheet (selecting a risk category and then adding details, with an option to send the alert anonymously),

- the **route completion and rating screen**, where users evaluate how safe they felt and can remove a route from future suggestions, and

- the **Profile, More Options and Forum** sections, including a forum feed where posts show safety ratings, likes and comments.

Having these flows in Figma makes the interaction more realistic and clickable, which will be important for the usability testing phase. It also allowed us to refine micro-interactions (such as button labels, error states and confirmation messages) and to check whether the navigation between sections feels coherent when experienced as a sequence rather than as isolated sketches.

Using a user-centered, participatory design methodology, our design protocol focuses on women's perceptions of safety data and their interactions with dynamic routing tools. In this sense, we are currently transitioning from WP2 (Interaction Prototype Development) to WP3 (Experimental Usability Testing), in line with our roadmap and Gantt chart. To ensure a diverse range of urban experiences and safety perceptions, we are focusing on women residing in various Istanbul neighborhoods. Before proceeding with high-fidelity implementation, this testing will help us comprehend user experience and confirm our low- and mid-fidelity prototypes. In other words, the Figma prototype will be revised based on the insights gained from these sessions, which will then inform our high-fidelity design and implementation processes.