UTM UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

SECV2113: Human-Computer Interaction

Semester 01, 2025/2026

Project Part #4: Prototyping & Evaluation

Group 1 Name: SURVIVOR

Lecturer: Dr. Sarina Binti Sulaiman

no.	NAME	MATRIC NO.
1	ABDURRAFIQ BIN ZAKARIA	A24CS0031
2	AHMAD MUNIF BIN BAHARUM	A24CS0038
3	YEE CHING YANG	A24CS0214
4	NAJMUDDIN BIN KAMARUDIN	A24CS0145
5	MUHAMMAD HAZIM BIN ZULKANAIN	A24CS0136

Table of Contents

Introduction

The usability testing was conducted to evaluate the "SafeRoute" high-fidelity prototype. Testing took place in various campus locations including residential colleges and academic buildings to simulate real-world usage. Equipment used included desktop computers and mobile devices to test the system's cross-platform responsiveness.

Testing was conducted for three primary tasks:

- **Task 1:** Viewing campus incident alerts (Student).
- **Task 2:** Managing emergencies and dispatching units (Security Officer).
- **Task 3:** Verifying secure entry and motorcycle-accessible delivery zones (Delivery Rider).

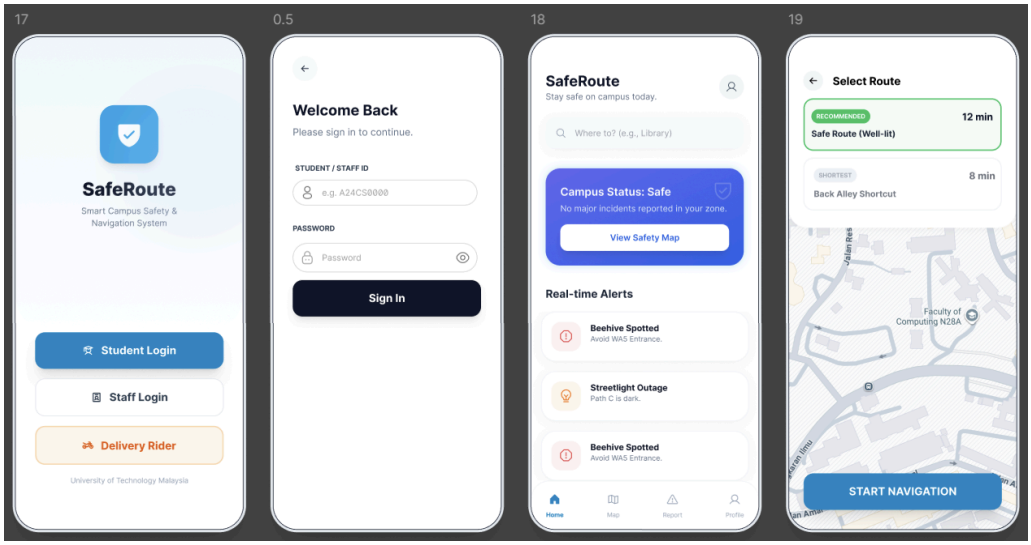
Testing Responsibilities:

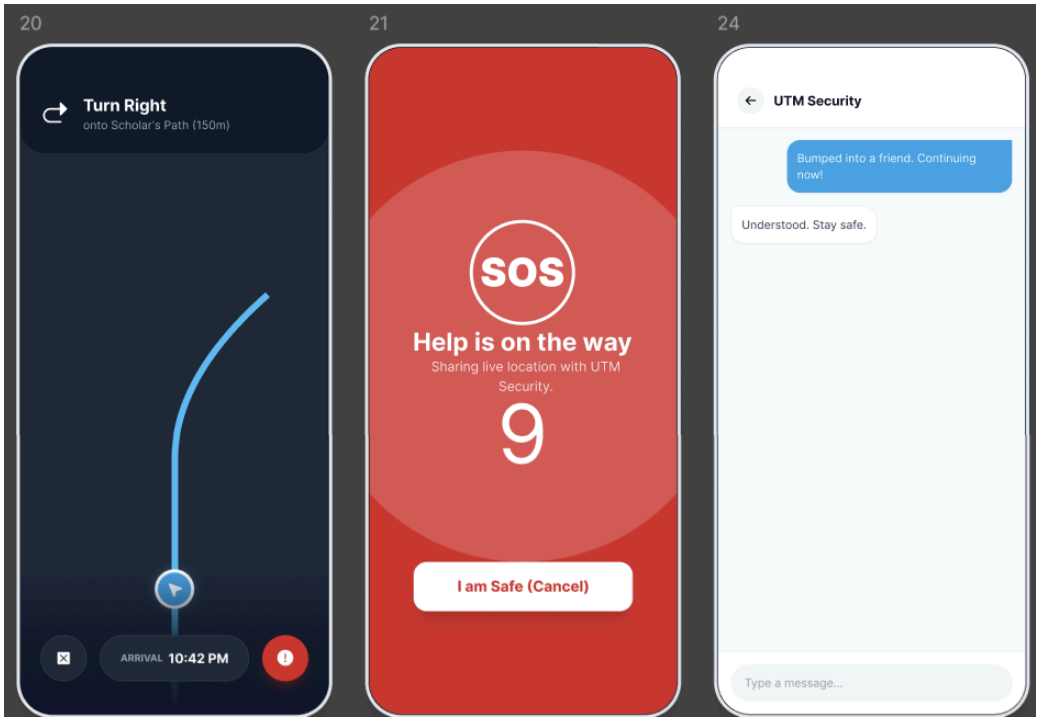
- **Testing for User 1 (Student):** Handled by AHMAD MUNIF BIN BAHARUM.
- **Testing for User 2 (Security Officer):** Handled by MUHAMMAD HAZIM BIN ZULKANAIN.
- **Testing for User 3 (Delivery Rider):** Handled by ABDURRAFIQ BIN ZAKARIA.

Screenshots of your prototype

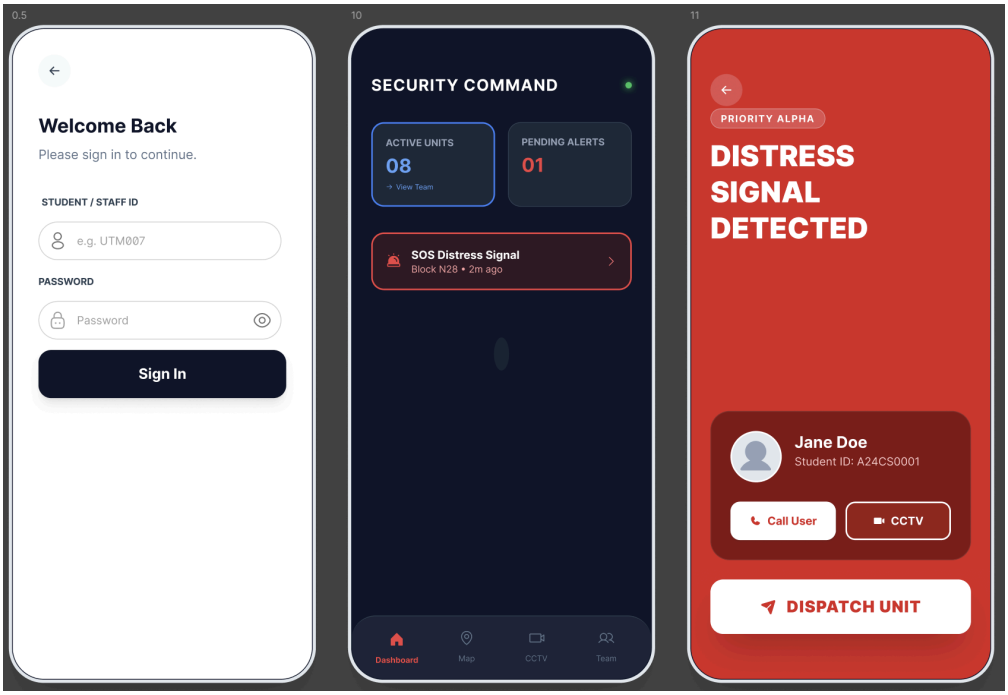
The final design, "SafeRoute," utilizes a centralized dashboard framework to minimize cognitive load.

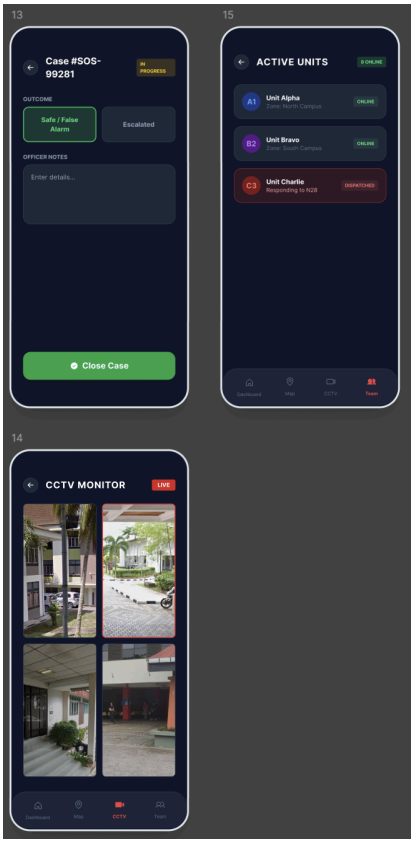
- **Student Navigation:** Features clear route visualization and specialized hazard icons like "potholes" or "poor lighting".



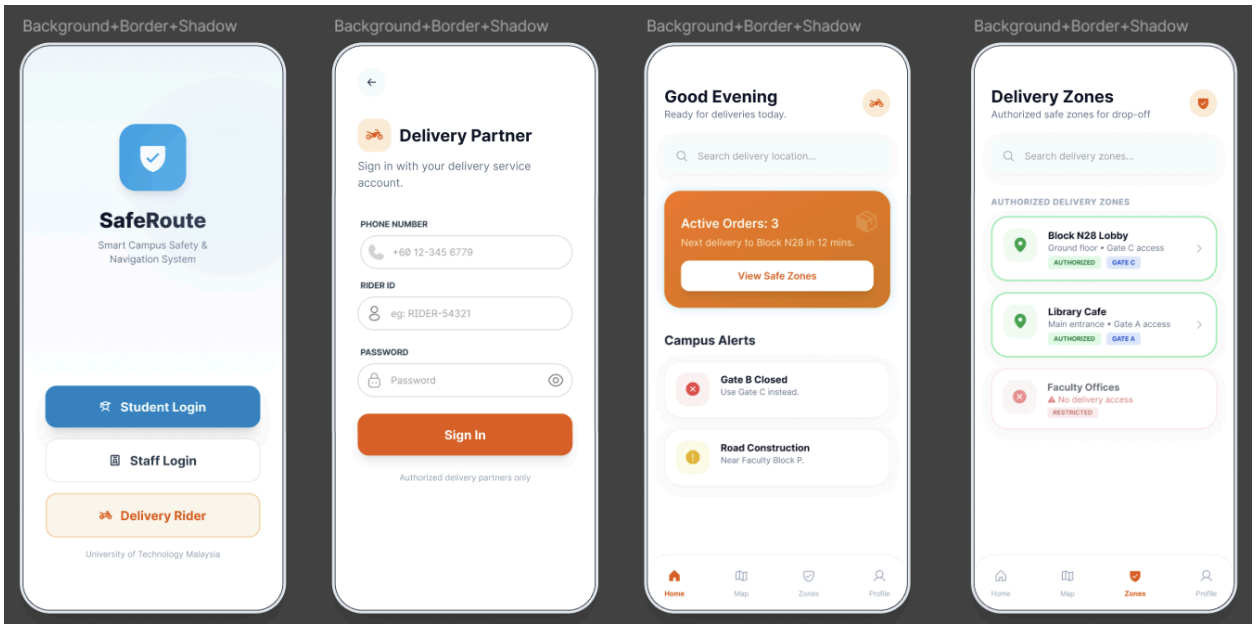


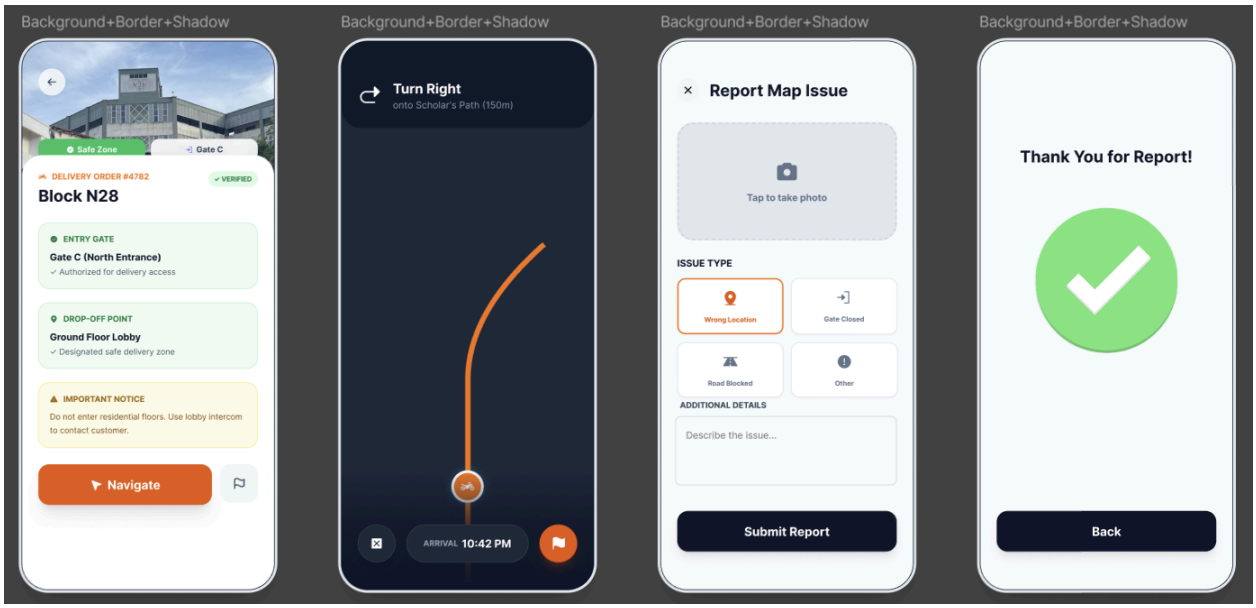
- **Security Command:** A dedicated interface for monitoring distress signals and managing active security units.





- **Delivery Flow:** Mapping of internal service roads and specific building blocks (e.g., "Block C2").





Briefing notes – prepared by {Rafiq}

Usability Testing Briefing Script:

Introduction and Welcome:
"Hello, and thank you for participating in our usability test for the **SafeRoute Campus Safety System**. My name is **[Your Name]**, and I will be guiding you through today's session."

Purpose of the Application:
"The purpose of this system is to enhance the safety of our campus community by providing a fast, accessible, and reliable platform for reporting incidents, requesting emergency assistance, and accessing real-time safety information. Unlike general traffic applications like Waze, SafeRoute is designed specifically to address pedestrian safety, campus-specific hazards, and 'last-mile' navigation within the university grounds."

Background Information:
"The system was developed after identifying critical gaps in existing navigation tools, such as the inability to filter for well-lit walking paths, the lack of motorcycle-specific access routes, and difficulties in pinpointing off-road locations during emergencies. SafeRoute aims to reduce emergency response times and provide 'psychological security' for students navigating the campus at night."

Your Role in the Session:
"Today, you will be performing three specific tasks using our high-fidelity prototype. Your primary goal is to interact with the interface to complete these objectives as naturally as possible.

- **Please 'Think Aloud':** Describe what you are looking for, what you expect to happen, and any confusion you experience as you navigate the app.
- **No Right or Wrong Answers:** We are testing the system's interface, not your abilities. If you find something difficult, it highlights a design issue we need to fix.
- **Termination:** If at any point you feel you cannot figure out how to complete a task, please say the word **'terminate'** out loud. We will then stop that task and move to the next one."

Consent:
"We will be screen recording this session and capturing audio of your 'think-aloud' process for academic evaluation purposes. Do you provide your verbal consent for us to proceed?"

Testing with users

Task 1: View Campus Incident Alerts (Student Perspective)

- **User 1 (Student):** [https://drive.google.com/drive/folders/1WeqbrgoqklykP3NqG7I6fLKHOt6Uunl7]
- **User 2 (Security):** [https://drive.google.com/drive/folders/1ffLn-iXwC4kLI5sJB78KntAS4FW2vSdb]
- **User 3 (Delivery):** [https://drive.google.com/drive/folders/1XK7dOhD51AGbWHFhPUL6d_7ZAafvvESY]

Task 2: Managing Emergencies (Security Perspective)

- **User 1 (Student):** [https://drive.google.com/drive/folders/1WeqbrgoqklykP3NqG7I6fLKHOt6Uunl7]
- **User 2 (Security):** [https://drive.google.com/drive/folders/1ffLn-iXwC4kLI5sJB78KntAS4FW2vSdb]
- **User 3 (Delivery):** [https://drive.google.com/drive/folders/1XK7dOhD51AGbWHFhPUL6d_7ZAafvvESY]

Task 3: Verifying Secure Entry and Delivery Zones (Delivery Rider Perspective)

- **User 1 (Student):** [https://drive.google.com/drive/folders/1WeqbrgoqklykP3NqG7I6fLKHOt6Uunl7]
- **User 2 (Security):** [https://drive.google.com/drive/folders/1ffLn-iXwC4kLI5sJB78KntAS4FW2vSdb]
- **User 3 (Delivery):** [https://drive.google.com/drive/folders/1XK7dOhD51AGbWHFhPUL6d_7ZAafvvESY]

Observations – prepared by {Hazim & Munif}

Based on testing sessions conducted with representative users, we have gathered critical observations and identified several usability issues. These findings are categorized by specific tasks for each user group to provide a clear overview of the current prototype's performance and areas for improvement.

Task 1: Students successfully used the "SafeRoute" interface to identify campus hazards, such as potholes and poor lighting, before returning to dorms late at night. The participants found the dashboard structure "well-built" and intuitive, allowing them to navigate these safety features and the "SOS" function without confusion, ensuring they could report issues quickly during their commute.

Task 2: Security officers appreciated the "Satellite Layer," which allowed them to visualize off-road markers and dispatch units to exact student coordinates rather than relying on vague landmarks. The testing confirmed that this feature significantly improved response efficiency, with the officer noting it would "save a lot of time" compared to current manual methods when locating distress signals.

Task 3: Delivery riders found the "Motorcycle Mode" effective for finding internal access paths and specific drop-off zones that were previously omitted by standard navigation apps like Waze. The rider explicitly praised the app’s ability to pinpoint locations in "unreadable" off-road areas, stating that the "light" and simple interface made it accessible even for those who are not technology-friendly.

Interview Summary: Users reported that the system provided a high sense of "psychological security" compared to general traffic apps due to its specialized safety focus. While the interface was praised for being simple and responsive, some noted that the reporting process for map inaccuracies still felt slightly secondary to navigation. Additionally, users suggested incorporating "more color" to the white-dominant design to make the alerts and map layers visually distinct.

Findings – prepared by {Yee Ching Yang & Najmuddin}

Based on the usability testing, the following problems and solutions were identified:
Based on the comprehensive usability testing phase, a detailed analysis was conducted to identify specific areas of friction and difficulty experienced by typical users when interacting with the system. This rigorous process allowed for the precise identification of various design and functional problems, as well as the formulation of targeted and effective solutions.

The key findings and the proposed corrective measures are systematically documented below:
This systematic approach of problem identification paired with targeted solutions ensures that the subsequent design iterations are data-driven, directly addressing genuine user pain points and significantly enhancing the overall user experience and system usability metrics.

Usability Problem	Possible Solution
Cognitive Load on Map: Excessive icons on the dashboard can sometimes clutter the view for security officers.	Implement a "Layer Toggle" to allow users to hide/show specific categories like "Traffic" vs "Security Threats" to reduce visual noise.
Reporting Friction: The process for reporting a missing service road currently requires navigating through a help menu, which is too many steps.	Add a "Quick Report" button directly on the active navigation screen for instant map corrections without leaving the map view.
Alert Specificity: Some students were unsure of the "severity" of generic incident alerts (e.g., distinguishing between a pothole and a major accident).	Include a "Severity Color Code" (e.g., Red for immediate danger, Yellow for caution) within the hazard icons to provide immediate context.