

CSE 6224 Software Requirements Engineering

TRIMESTER 2510

PROJECT PART 1

Campus Ride-Sharing Platform with Parking System Integration

**Elicitation Output**

**Lecture Section: TC1L**

**Tutorial Section: TT2L**

**Group Number: 7**

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1 Introduction

Our team used various elicitation tools to find out what our users truly needed and expected such as interviews, surveys and watching them use the system.

With structured interviews, we try to get answers that are clear and logical. Next, a survey/questionnaire provided quantitative insight into user preferences, and an observational method gave us opportunities to have a closer look at actual user behaviour in real contexts.

These combination methods ensured that we obtained both stated and unstated requirements. The following outputs represent the findings from this elicitation process, forming the basis for prioritizing features to develop with real user needs.

2 Elicitation Session Overview

To obtain a true understanding of user needs and want, we conducted three types of elicitation activities:

|  |  |
| --- | --- |
| **Elicitation Session** | **Explanation** |
| Structured Interview | University faculty, campus administrators and parking staff were interviewed as part of the study. Our team used a set of predefined questions to find out if real-time parking tracking, reservation systems and integration with MMU ID were acceptable ideas for users. After showing each feature, participants were asked to rate their level of agreement from 1 to 5 to help ensure our data could be analysed consistently. |
| Survey/Questionnaire | Both students and staff were asked to use Google Forms to fill out the questionnaire. We used a 1-5 scale to record their feelings about features such as ride booking, live parking maps, notification system and various login methods. The Kano model was applied to the results to determine which features to prioritize. |
| Observation | Our team observed activity in campus parking areas during both busy periods and quiet times. We intended to study how people park, how congested the area is and what the current environmental state is. We also looked at if the physical environment (e.g., parking sensors) could fit certain technical features. This simple approach made it possible to check if our assumptions were correct and to see how the system would be employed on-site. |

3 Requirement Categorization Using Kano Model

|  |  |  |
| --- | --- | --- |
| **Feature** | **Kano Category** | **Justification** |
| Request ride | Must-be (M) | Core function expected in any ride-sharing platform |
| Offer ride | Must-be (M) | Essential for carpooling to work; without it, system fails |
| View ride details | Must-be (M) | Users need to confirm ride info, expected baseline feature |
| Real-time location tracking | Performance (P) | Users prefer to know current ride position for safety and planning |
| Advanced ride booking | Attractive (A) | Convenient, especially for users with fixed schedules or in larger groups, but not always expected |
| Messaging functionality | Attractive (A) | Enhances communication, improves coordination; not strictly required |
| Notification system | Performance (P) | Users want timely updates for rude status, cancellations, changes |
| Sign up using MMU ID | Must-be (M) | Required for campus security and institutional integration |
| Log in / Log out | Must-be (M) | Basic functionality expected in any system |
| Check real-time parking availability | Performance (P) | Highly useful feature that directly affects satisfaction |
| Admin view user info & car details | Must-be (M) | Needed for accountability and campus safety |
| In-app payment and wallet | Attractive (A) | Adds convenience, but users can still use cash or alternatives |
| View payment history | Indifferent (I) | Useful only for those who use wallet features |
| Reserve parking | Attractive (A) | Nice to have, especially for staff; not everyone will use it |
| Report improper parking | Attractive (A) | Encourages community policing; not essential for app to function |
| Admin view parking violation reports | Must-be (M) | Admins need this for enforcement and policy action |

4 Summary of Elicitation Outcomes

4.1 Interview

**Objective**

To learn in detail from selected stakeholders about their current parking situation and whether a ride-sharing platform would appeal to them. The goal of this interview is to learn what stakeholders hope for and what they expect.

Structured Interview Summary

**Interview: Campus IT Department (NICE)**

1. Will improper parking reporting systems be implementable?

* Yes, technically possible.
* May require coordination with security and enforcement teams.
* Concerns about false reports, so some validation will be needed.

2. Is a parking reservation system implementable? Can the reservation be short-term?

* Yes, but only in selected zones to avoid misuse.
* Short-term (eg. 30 mins–2 hours) reservations are preferred.
* System must auto-release unused reserved spots.

3. Is a real-time parking space tracker implementable?

* Possible if integrated with smart sensors or CCTV analytics.
* May require phased rollout, starting with busiest lots.
* Funding and infrastructure availability are limiting factors.

4. If our system requires admin, is it doable?

* Yes, assigning dedicated admins is feasible.
* Suggest integrating with existing campus IT or security roles.
* Admin roles must be clearly defined.

5. If our system requires access to the MMU ID database, is it doable?

* Possible, but requires approval and data privacy compliance.
* Needs coordination with IT Services and consent policies.

4.2 Questionnaire

Survey result till 20/5/2025

**Objective**:

To discover what the users hope for and can handle concerning UX design, live traits, the functionality of the app and its performance.

**Total Response**: 123

**Target Audience**: MMU students, Faculty members

**Method**: Google Forms

Summary of Key Findings

1. An Improper Parking Reporting System

* The majority of the respondents said they were very happy with the option to use the app to report parking issues. There was disappointment from many if the option wasn’t given.
* **User Need**: A reporting system for improper parking is strongly desired.

2. Interactive Real-Time Parking Map

* There was a lot of solid support for this feature. The users explained that services would not work well without it, making it an important aspect.
* **User Need**: Users hope to access a live interactive parking map in the app.

3. Parking Spot Reservation

* People had a mixed response to this. Not everyone was happy with it; some people thought it was good, some not sure and some believed it was unfair or didn’t work in practice.
* **User Need**: If an optional reservation system is used, it should be done with fairness and care.

4. Ride Booking and Tracking

* People didn’t usually pre-book their rides. Research results show that everyone responds differently to real-time tracking, suggesting the importance of balancing what’s helpful with what is private.
* **Design Consideration**: Allow riders see their ride timings when they want, as a privacy-respecting feature.

5. User Interface

* A set layout, no pop-ups and a sleek, updated style were the top choices from users. People found it was annoying to login and verify their accounts.
* **User Need**: The app should be clean, consistent in style and uncomplicated, so they aren’t interrupted a lot.

6. System Performance Expectations

* A page should not take longer than 1–2 seconds to load at most.
* The best response time for carpool matches should be 10–15 seconds.
* I recommend getting real-time parking updates at a rate of every 3–5 seconds
* **User Need**: the app to be fast and to update data as things happen in real time.

4.3 Observation

Date of Observation: 19/5/2025

**Location**: MMU Cyberjaya campus: FAIE backdoor parking lots, FCI parking lots, Back of library parking

**Objective**:

To study how students and faculty use ride-sharing and park on campus, so that the needed features for the platform can be identified.

Key Observations

|  |  |  |
| --- | --- | --- |
| **Area Observed** | **What was observed** | **Insight Gained** |
| FAIE backdoor parking lots | Usually, faculty members try to get there before classes start and grab a parking spot. The area is meant for staff members only. Drivers usually avoid the smaller lots, leaving them with less traffic. | Most parking spaces for staff are taken, so others have very little chance of getting one. Smaller lots lose favour because they are either not big enough or in the wrong area. |
| FCI parking lots | It is usually hard for students to find an available parking space. It’s one of the busiest areas in MMU Cyberjaya. Staff spaces are usually available but cannot be used by students. Students often spend 5–10 minutes looking for a space.  There are spaces behind each parking lot, where the lamp posts are located. | Many students want to park at FCI. Making staff park away from the work site limits how they can get to work. Looking for a parking space usually takes time and can get stressful.  There are plenty of spaces where you can put the parking sensors. In addition to other locations, CCTVs for parking detection can be installed on lamp posts. |
| Behind of library parking | This area is generally closed and only opened during special events or for supplier deliveries to the bakery and HTC (cafeteria). | People don’t make use of this space on typical days. It can be used for temporary or overflow parking if organized as part of a managed system. |

**Initial User Needs Identified**

1. Real time Parking Availability

Users want information in real time about how many spaces are open in the lot to help them park efficiently.

1. Carpool Coordination System

Students and staff want a simple way to find and share rides with others to reduce the number of vehicles on campus.

1. Overflow Parking Guidance

People should be alerted when parking elsewhere is possible, mainly during busy hours or special events.

5 Conclusion

By using interviews, questionnaires, and observing, we learned in detail about the real needs, wants, and difficulties experienced by students, teachers, and campus staff at MMU. Each elicitation technique contributed uniquely—interviews revealed feasibility and institutional constraints, surveys quantified user preferences, and observations verified behaviors in the real campus environment.

Users consider the most important features to be a live parking search, a flexible parking reservation option, an organized carpool option and an app that is both responsive and easy to use. Most of the features are feasible when the right planning and compliance are followed, mainly regarding MMU ID and parking enforcement.

The data collected from all methods not only confirmed that the campus community is ready for a digital ridesharing and parking platform but also provided clear direction on which functionalities to prioritize. Using this strong base, the following steps will be planned to support user needs and the abilities of the institution.