Task 1 – Team Formation and Project Preliminary



**Project**

CSE6224 Software Requirement Engineering   
Term 2510

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| **Tutorial Section** | TT2L |
| **Group** | Group E |
| **Project Title** | Campus Ride-Sharing Platform with  Parking System Integration |

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| **Name** | **Student ID** |
| Kelven Yee Kai Wen | 1211111244 |
| Koh Xuan Lin | 1211109618 |
| Ow Ka Sheng | 1211108820 |
| Shazreen Binti Sheridan | 243UC247P3 |

## 1.0 Project Vision

To develop a smart, secure, and sustainable ride-sharing platform tailored for MMU students, staff, and faculty. The platform integrates with the campus parking system and digital ID authentication to reduce congestion, optimize parking, and promote eco-friendly commuting.

## 2.0 Project Scope

### 2.1 Functional Scope

#### 2.1.1 User Onboarding & Digital ID Verification

* MMU single sign-on (SSO) ensures only current students, staff, or faculty can register and log in.
* User profiles include name, university ID, photo, contact details, and vehicle information (make, model, license plate).

#### 2.1.2 Ride Offer & Request

* Drivers publish ride offers with origin, destination, date/time, available seats, and vehicle type (e.g., sedan, SUV, van).
* Passengers search for or filter rides by schedule, proximity, or preferred vehicle type, then request to join.
* Matching is manual: drivers approve or decline incoming requests through the app.

#### 2.1.3 Parking Availability & Incentives

* Real-time campus parking occupancy map, highlighting “carpool-only” zones and general lots.
* Reward Points System:
  + **Earn**: Drivers and riders earn points per trip (e.g., 10 points for drivers, 5 points for riders).
  + **Redeem**: Points can be redeemed for priority parking reservations in high demand lots, campus bookstore vouchers, or meal discounts at campus cafeterias.
  + **Leaderboard**: Top carpoolers receive badges and extra incentives to encourage regular participation.

#### 2.1.4 Communication & Notifications

* Push notifications for ride confirmations, cancellations, parking spot reservations, and incentive milestones.
* In-app chat between matched drivers and riders for coordinating exact pickup/drop-off locations.

#### 2.1.5 Ride History

* Users view a chronological log of past rides, seats offered/used, parking spots reserved, and rewards earned.

#### 2.1.6 Safety & Emergency Features

* Users can add emergency contact information.
* Includes an SOS button that alerts selected contacts and shares ride details for safety.

#### 2.1.7 User Ratings & Feedback System

* After each ride, drivers and passengers can rate and comment on each other.

#### 2.1.8 Admin Dashboard & Reporting

* Web-based dashboard for administrators to view key KPIs immediately (total rides, active carpools, parking occupancy trends, reward redemptions).
* Custom report generation and export (CSV/PDF) on ride usage, parking utilization, incentive redemption, and user growth over any selected period.

### 2.2 Non-Functional Scope

#### 2.2.1 Performance & Reliability

* Support an initial user base of up to 500 simultaneous active sessions in Phase 1.
* Basic fallback if parking data is delayed.

#### 2.2.2 Security & Privacy

* All user data protected; only MMU-affiliated users can access the system.
* Data encrypted in transit (TLS) and at rest.

#### 2.2.3 Usability

* Mobile-first design targeting iOS and Android.
* Only Web-based design for admin dashboard
* Simple, intuitive screens (3-tap workflows) for creating/joining rides.

### 2.3 Stakeholder Identification & Analysis

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| |  |  | | --- | --- | | **Stakeholder** | **Role & Needs** | | Students | * Affordable, eco‑friendly commute * Easy scheduling | | Lecturers & Staff | * Reliable rides * Secure, university-verified access | | Parking Admin Team | * Accurate occupancy data * Define carpool zones | | IT & Security Office Staff | * Ensure compliance with university policies * Approve SSO | | Project Team | * Plan, build, test, and deploy the platform | | Student Representative Council (SRC) | * Facilitate partnerships with external businesses to support incentive programs | |  |

### 2.4 Assumptions & Constraints

#### 2.4.1 Assumptions

* Only MMU-authorized users (students, staff, lecturers) can access and use the app.
* All users have a smartphone and basic familiarity with mobile apps.
* Campus Wi-Fi or cellular coverage extends to all parking areas with minimal dead zones.

#### 2.4.2 Constraints

* No payment or fare-splitting feature in Phase 1.
* Limited to native iOS and Android clients initially.
* Must adhere to MMU’s data-privacy and IT security policies.

## 3.0 Project Goals

## 1. Encourage Sustainable Commuting

* Increase carpool participation among MMU community members by at least 25% in the first semester.
* Reduce single-occupancy vehicle trips to campus, lowering overall carbon emissions.

### 2. Minimize Parking Demand

* Free up 15% more parking spaces in peak hours (8AM - 10AM) through coordinated carpools and reserved “carpool-only” zones.
* Provide live parking availability to users, reducing time spent searching for spots.

### 3. Enhance Safety through ID Verification

* Ensure all users are pre-verified through MMU SSO, eliminating unauthorized or fraudulent access and maintaining a trusted, university-only user base.
* Enhance user safety with emergency contact registration and an SOS button, allowing real-time alerts and ride detail sharing with selected contacts during emergencies, supported by systematic ride history tracking.

### 4. Promote User Collaboration via Carpooling

* Foster a community of regular drivers and riders, tracked through ride history and feedback loops.
* Reward consistent participants with campus-wide incentives such as meal vouchers or bookstore discounts.

## 4.0 Project Timeline

