Campus Carpool System for University Students

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Abstract

University students across Pakistan face persistent transportation challenges due to rising ride-hailing fares and a shortage of safe, affordable commuting options. The absence of a campus-specific, verified carpooling system compels students to rely on costly private rides or unsafe public transport. This project proposes the development of a **Campus Carpool & Ride-Sharing System exclusively for Pakistani university students**. The system will enable students to register with verified student IDs, post available rides, search for matches based on location and timing, and review ride partners for accountability. By facilitating secure, student-only ride-sharing, the platform aims to reduce transportation costs, enhance safety, and alleviate traffic congestion.

Introduction

Transportation remains one of the most persistent challenges faced by university students in Pakistan, especially in metropolitan areas such as Lahore, Karachi, and Islamabad. The rising cost of fuel, increasing traffic congestion, and the lack of a reliable, safe, and affordable public transportation system have made daily commutes stressful and expensive. For many students, the only feasible options are private ride-hailing services or informal ride arrangements, both of which come with significant drawbacks.

Commercial ride-hailing platforms like Careem and InDrive are widely used in Pakistan. Careem is a prominent service offering convenience, safety features like driver tracking, and in-app payments—but it is relatively costly for students who commute daily. On the other hand, InDrive allows users to negotiate fares directly with drivers, offering some flexibility, but it lacks standardized safety features and is still driver-centric rather than commuter-friendly. Additionally, both platforms cater to the general public and do not offer student-specific verification or fare-sharing options.

This project proposes the development of a Campus Carpool & Ride-Sharing System, a desktop-based application built using Java and JavaFX, with backend database support. This system will be exclusively for university students in Pakistan with goals like:

- Ensure only verified students can join.

- Allow students to post or join carpool rides.

- Introduce automated fare splitting.

- Enable reviews/ratings for accountability

- Promote eco-friendly and affordable commuting.

Scope

The initial version targets intra-city university commutes within major cities (e.g., Lahore). Future scalability may include inter-city trips, staff inclusion, and mobile app versions.

Related Work

1. Careem

Careem [1] is one of the leading ride-hailing services in Pakistan. It allows users to book rides through a mobile app offering features such as GPS tracking, fare estimation, and multiple ride categories (GO, Business, Bike, etc.). While it provides a safe and convenient commuting experience, it is relatively expensive for students on a daily basis and lacks features like fare splitting or ride-sharing among multiple users.

2. InDrive

InDrive [2] is another widely-used service that enables users to negotiate ride fares directly with drivers. It offers greater pricing flexibility compared to Careem and supports real-time communication between passengers and drivers. However, it lacks proper user verification beyond basic credentials, does not support ride-sharing, and is primarily focused on individual, short, or long-distance rides within cities.

3. BlaBlaCar

BlaBlaCar [3] is an international carpooling platform that connects drivers with empty seats to passengers heading in the same direction. It allows users to search for rides, view driver profiles, book seats, and share travel costs. The platform also includes safety features such as user verification, ratings, and route filters. However, it is not currently available in Pakistan and is mainly used for intercity, long-distance travel.

4. Facebook Carpooling Groups

Facebook carpooling groups are informal communities where individuals post ride offers or requests, often targeted around specific routes or university campuses. These groups are widely used due to their accessibility but operate without any formal structure. They rely heavily on mutual trust, manual coordination, and do not offer any kind of user verification or efficiency tools..

5. University WhatsApp Groups

University WhatsApp groups serve a similar purpose, typically formed by students to coordinate daily commutes. Members share ride availability, timings, and pickup locations through group messages. While these groups offer convenience and quick communication, they lack structured features such as automation, ride-matching, verification, and reliability.

Upon studying five existing platforms and methods, it is evident that **no single solution** provides a verified, student-centric, affordable, and structured ride-sharing platform in Pakistan. While Careem and InDrive serve general commuting needs, they lack affordability and verification for students. Platforms like BlaBlaCar are not localized, and informal groups on Facebook and WhatsApp fail to offer safety and structured features. This project aims to combine the essential features of ride-sharing—affordability, verification, and structure—into one unified system tailored specifically for Pakistani university students.

Comparison Table

Feature	Careem	InDrive	BlaBlaCar	Facebook Groups	WhatsApp Groups	CampusLift
Verified Student-Only Access	✗	✗	✗	✗	✗	✓
Daily Intra-City Ride Sharing	✗	✗	✗	✓	✓	✓
Fare Sharing Between Students	✗	✗	✓	✗	✗	✓
Safety Verification	✓	✗	✓	✗	✗	✓
Automated Ride Matching	✓	✓	✓	✗	✗	✓
Free/Low Cost to Use	✗	✗	✓	✓	✓	✓

Tools & Technologies

To implement this system efficiently, the following tools and technologies will be used:

- **Frontend**: Java + JavaFX (for desktop GUI interface)
- **Backend**: Java (Core + JDBC for database connectivity)
- **Database**: MySQL or SQLite
- **Charting/Graphing (optional):** JavaFX Charts
- **IDE**: IntelliJ IDEA or Eclipse
- **Version Control**: GitHub

Future Enhancements

- In-app emergency alert button (linked with ride & user info)
- Mobile version with live location sharing
- AI-based ride matching for optimal convenience

References

[1] Careem Pakistan - www.careem.com (20th April, 2025)

[2] InDrive Pakistan - www.indrive.com (3rd May, 2025)

[3] BlaBlaCar Official - www.blablacar.com (11th March, 2025)

Various Facebook carpooling groups in Lahore, Karachi, Islamabad

University student WhatsApp group practices observed in COMSATS, LUMS, and PU