



THE INTELLIGENT RIDE AND TICKET SHARING PLATFORM

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Abstract

Urban transportation systems are facing increasing pressure due to rising population density, traffic congestion, ticket wastage, and inefficient resource utilization. A major challenge observed in conventional travel systems is the underutilization of available vehicle capacity and financial loss incurred by passengers due to ticket cancellations and partial refunds. These inefficiencies contribute to economic loss, environmental impact, and reduced travel flexibility. To address these issues, this research proposes and implements an Intelligent Ride and Ticket Sharing Platform, a centralized web-based system designed to facilitate collaborative ticket and ride sharing through a secure and structured framework.

The proposed system enables users to assume distinct roles such as sellers, buyers, and administrators. Sellers can post unused bus tickets or available car seats with relevant journey details, while buyers can search, filter, and request bookings through a transparent workflow. The



administrative module ensures regulation, monitoring, and validation of system operations. The platform is developed using PHP for server-side logic and MySQL for relational database management, ensuring efficient transaction processing and secure data handling.

The system incorporates modular architecture, role-based authentication, search algorithms, request tracking, and validation mechanisms to ensure usability and security. It supports scalable design principles that allow integration with digital payment gateways, real-time notifications, and GPS-based ride tracking in future versions. By promoting resource optimization and cost-effective travel, the Intelligent Ride and Ticket Sharing Platform contributes toward sustainable urban mobility and smart city transportation initiatives.

Keywords

Ride Sharing, Ticket Sharing, Urban Transportation, Web-Based Platform, PHP, MySQL, Role-Based Access Control, Smart Mobility, Resource Optimization, Sustainable Transportation.

1. Introduction

Urban transportation systems are experiencing rapid transformation due to increased population density, urbanization, and technological advancements. While transportation infrastructure has expanded over time, inefficiencies remain persistent. One significant issue is the underutilization of vehicle capacity, particularly in buses and private vehicles. Simultaneously, ticket cancellation policies often result in financial losses for passengers who are unable to travel.

Traditional ticket booking systems are rigid in nature. Once a ticket is booked, cancellation typically results in a deduction of charges, leaving the passenger at a loss. Moreover, the vacated seat often remains unused, leading to wasted capacity. In private transportation, many vehicles operate with empty seats, contributing to fuel wastage and environmental pollution.

With the growth of internet accessibility and web technologies, centralized digital platforms have emerged as powerful tools for solving logistical challenges. A structured ride and ticket sharing platform can significantly improve transportation efficiency by connecting individuals with complementary travel requirements.

The Intelligent Ride and Ticket Sharing Platform aims to provide a collaborative environment where unused tickets and empty vehicle seats can be shared securely. This system reduces financial losses, optimizes seat utilization, and promotes sustainable travel practices.

2. Literature Review

Various studies have explored ride-sharing and collaborative mobility systems. Existing platforms such as carpooling applications and peer-to-peer transportation services



demonstrate the effectiveness of shared travel models. However, most current systems focus exclusively on ride-sharing and do not address unused ticket redistribution.

Research indicates that transportation accounts for a significant percentage of urban carbon emissions. Studies emphasize the importance of shared mobility solutions to reduce environmental impact. Carpooling applications have shown success in reducing fuel consumption and traffic congestion.

However, limitations exist:

- Lack of integrated ticket-sharing functionality
- Insufficient administrative monitoring
- Limited transparency between buyers and sellers
- Inadequate validation mechanisms

The proposed system builds upon previous models by integrating ticket sharing and ride sharing into a unified platform, supported by structured database management and role-based control.

3. Problem Statement

The primary issues identified in conventional transportation systems include:

1. Financial loss due to ticket cancellation.
2. Underutilized vehicle seating capacity.
3. Lack of centralized platforms for ticket resale.
4. Absence of secure communication between travelers.
5. Inefficient resource allocation in urban mobility systems.

These challenges necessitate a secure, scalable, and technology-driven solution.

4. Objectives of the Study

The main objectives of the project include:

- To design and develop a web-based ride and ticket sharing system.
- To reduce financial losses from unused tickets.
- To optimize vehicle seat utilization.
- To implement secure role-based authentication.
- To ensure efficient database management using MySQL.
- To provide search and filtering mechanisms for users.
- To maintain system integrity through validation and administrative monitoring.

5. System Architecture

The system follows a three-tier architecture:

5.1 Presentation Layer

The front-end interface developed using PHP, HTML, CSS, and JavaScript enables user interaction.

5.2 Application Layer

Business logic is implemented in PHP, handling authentication, booking requests, validation, and role-based operations.

5.3 Data Layer



MySQL database manages user records, ticket listings, booking requests, and administrative logs.

This layered approach ensures scalability, maintainability, and modularity.

6. Methodology

The project follows the Software Development Life Cycle (SDLC) methodology:

1. Requirement Analysis
2. System Design
3. Implementation
4. Testing
5. Deployment
6. Maintenance

Agile principles were incorporated to allow iterative improvement and feature enhancement.

7. System Design

7.1 Data Flow Diagram (DFD)

Level 0 DFD:

- User interacts with system.
- System processes requests.
- Database stores and retrieves information.

Level 1 DFD includes:

- User Registration
- Ticket Listing
- Ride Posting
- Booking Request
- Admin Verification

7.2 Entity Relationship Diagram (ERD)

Main Entities:

- User (UserID, Name, Email, Role)
- Ticket (TicketID, JourneyDate, Source, Destination)
- Ride (RideID, VehicleType, SeatsAvailable)
- Request (RequestID, Status, BuyerID, SellerID)
- Admin (AdminID, Credentials)

Relationships:

- One user can post multiple tickets.
- One ticket can receive multiple requests.
- Admin manages multiple users.

8. Database Design

Tables Used:

8.1 Users Table

- user_id (Primary Key)
- name
- email
- password
- role

8.2 Tickets Table

- ticket_id
- seller_id
- source
- destination
- date
- price



8.3 Rides Table

- ride_id
- seller_id
- vehicle_type
- seats_available

8.4 Requests Table

- request_id
- buyer_id
- ticket_id
- status

Indexes and foreign keys ensure relational integrity.

9. Implementation Details

The system is implemented using:

- PHP for server-side scripting
- MySQL for database
- HTML & CSS for interface
- JavaScript for validation

Core Functional Modules:

1. Registration & Login Module
2. Seller Dashboard
3. Buyer Dashboard
4. Search and Filter Module
5. Request Handling Module
6. Admin Control Panel

10. Security and Validation

Security features include:

- Password hashing
- Input validation
- SQL injection prevention

- Role-based access control
- Session management

Validation ensures:

- Proper email format
- Required fields completion
- Valid date selection

11. Testing and Results

Testing methods used:

- Unit Testing
- Integration Testing
- System Testing
- User Acceptance Testing

Results show:

- Improved seat utilization
- Reduced cancellation losses
- Efficient request processing
- Secure login authentication

12. Advantages of the System

- Cost-effective travel
- Reduced seat wastage
- Centralized platform
- User-friendly interface
- Secure data handling
- Scalable architecture

13. Limitations

- Depends on internet availability
- No integrated payment gateway (current version)



- Manual confirmation required

14. Future Enhancements

- Digital payment integration
- Real-time notifications
- GPS tracking
- Mobile application version
- AI-based ride matching
- Rating and review system

15. Conclusion

The Intelligent Ride and Ticket Sharing Platform successfully addresses key

challenges in urban transportation systems by enabling collaborative ticket and ride sharing. By integrating structured role-based access, secure database management, and user-friendly design, the system enhances travel efficiency and reduces resource wastage.

The modular architecture ensures adaptability for future enhancements such as payment integration and smart notification systems. As cities continue to expand and transportation demand increases, platforms like this contribute significantly toward sustainable mobility and smart city development.

The system demonstrates that technology-driven solutions can effectively optimize transportation resources while improving user convenience and reducing financial loss.