

# Online Bus Ticket Sales System

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**Abstract:** The Online Bus Ticket Sales System is designed to modernize and simplify the process of reserving and purchasing intercity bus tickets through a responsive web-based platform. Traditional ticket booking requires passengers to visit physical bus terminals or contact agents directly, leading to long waiting times, lack of real-time seat availability, and limited payment options. This system provides an integrated solution where travelers can search bus schedules, select available seats dynamically, complete secure digital payments, and download e-tickets instantly. Developed with modern web technologies, the system offers bus operators an intuitive administrative portal to manage bus fleets, routes, seat layouts, trip schedules, bookings, and pricing. This platform optimizes operational efficiency for transportation providers, reduces manual ticketing errors, and provides passengers with a streamlined, transparent booking experience.

**Keywords:** Online bus ticketing, bus reservation system, seat allocation, e-ticket, transportation management

## INTRODUCTION

Public road transportation serves as the backbone of intercity travel and passenger transit across the region. However, conventional manual ticketing systems present numerous hurdles for both passengers and transport operators. Commuters frequently face challenges such as standing in long terminal queues, lack of real-time visibility over departure schedules and seat availability, and paper-based ticket handling. To overcome these limitations, the Online Bus Ticket Sales System provides a centralized digital solution. Passengers can query route availability, view visual seat maps, choose their preferred seats, and securely purchase tickets from any device. The platform also enables transport administrators to manage bus schedules, monitor occupancy rates, and handle finances seamlessly.

## PROBLEM

Traditional bus ticketing requires passengers to visit physical counters, leading to long queues, wasted time, and limited visibility over departure schedules and seat availability. Meanwhile, manual record-keeping by operators often causes double-booking errors and slow payment tracking. Therefore, an online bus ticket sales system is needed to provide real-time schedule inquiries, dynamic seat selection, and streamlined digital payments for both passengers and operators.

## APPROACH

The Online Bus Ticket Sales System is designed with two main roles: User (Passenger) and Administrator, as shown in Figure 1 and Figure 2. The User role allows passengers to search

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trips, reserve seats, and purchase tickets conveniently, while the Administrator role manages passengers, routes, trips, bookings, and overall system operations.

After accessing the system, users can:

- View home, help, FAQs, and about pages
- Search trips by selecting departure city (From), arrival city (To), and departure date
- View available trip lists and select a preferred trip
- Check real-time seat availability and choose preferred seat(s)
- Enter traveler information and confirm the booking
- Select a payment agent, complete transfer via QR scan, and submit payment
- View, download, or print digital e-tickets

After logging in, the administrator can:

- View the dashboard and monitor ticketing activities
- Add, update, and delete bus routes, schedules, and trip details
- Manage passenger records and booking information
- Verify payment transactions and approve ticket issuances
- Generate sales reports and passenger manifests
- Logout from the system

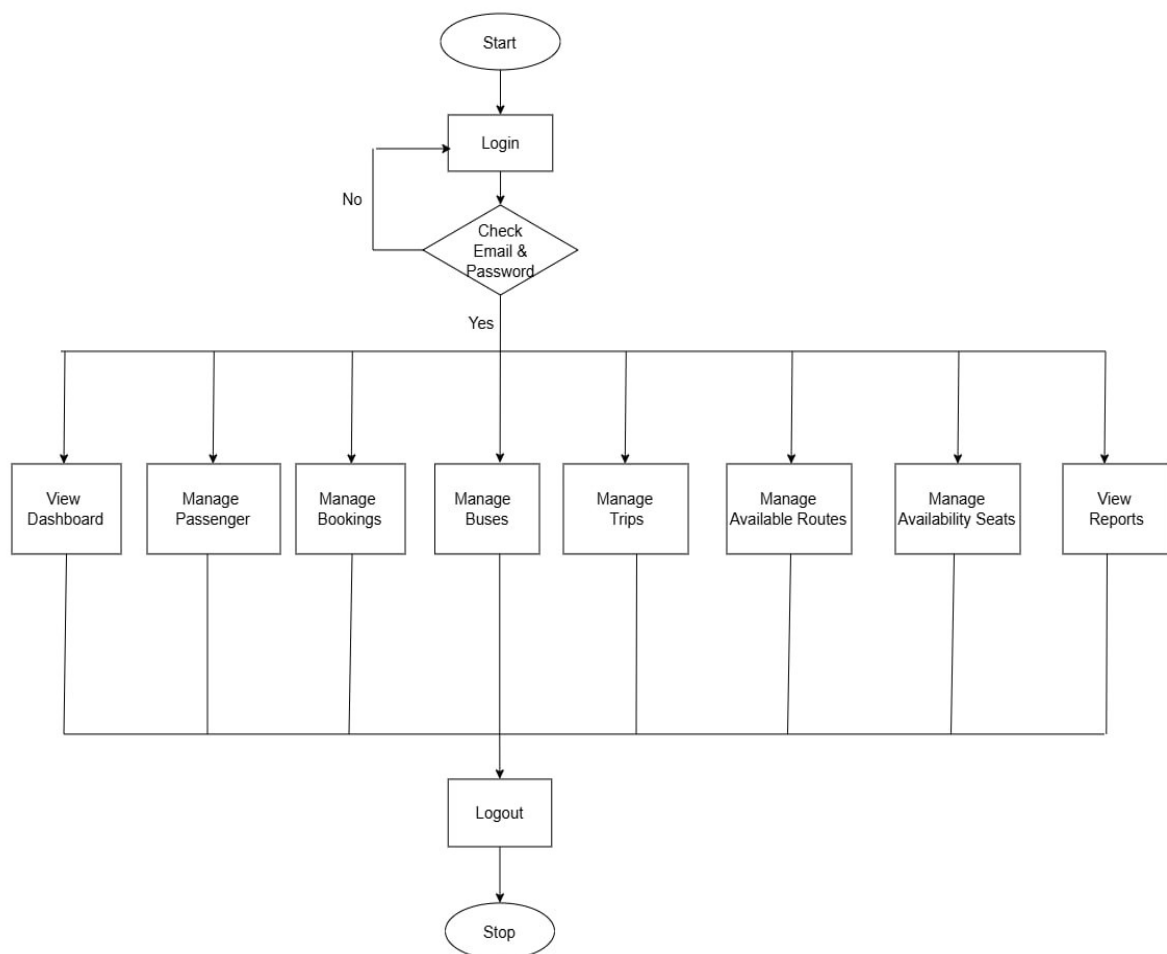


**Figure 1: System Flow Diagram for Admin**

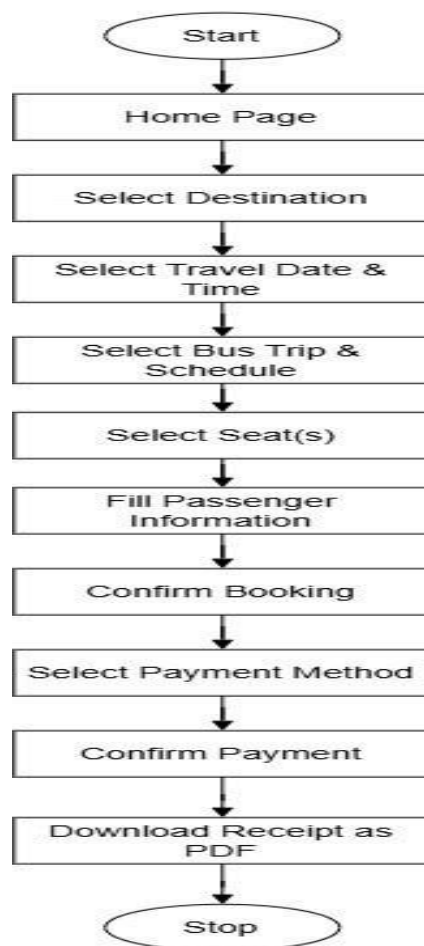


Figure 2: System Flow Diagram for User

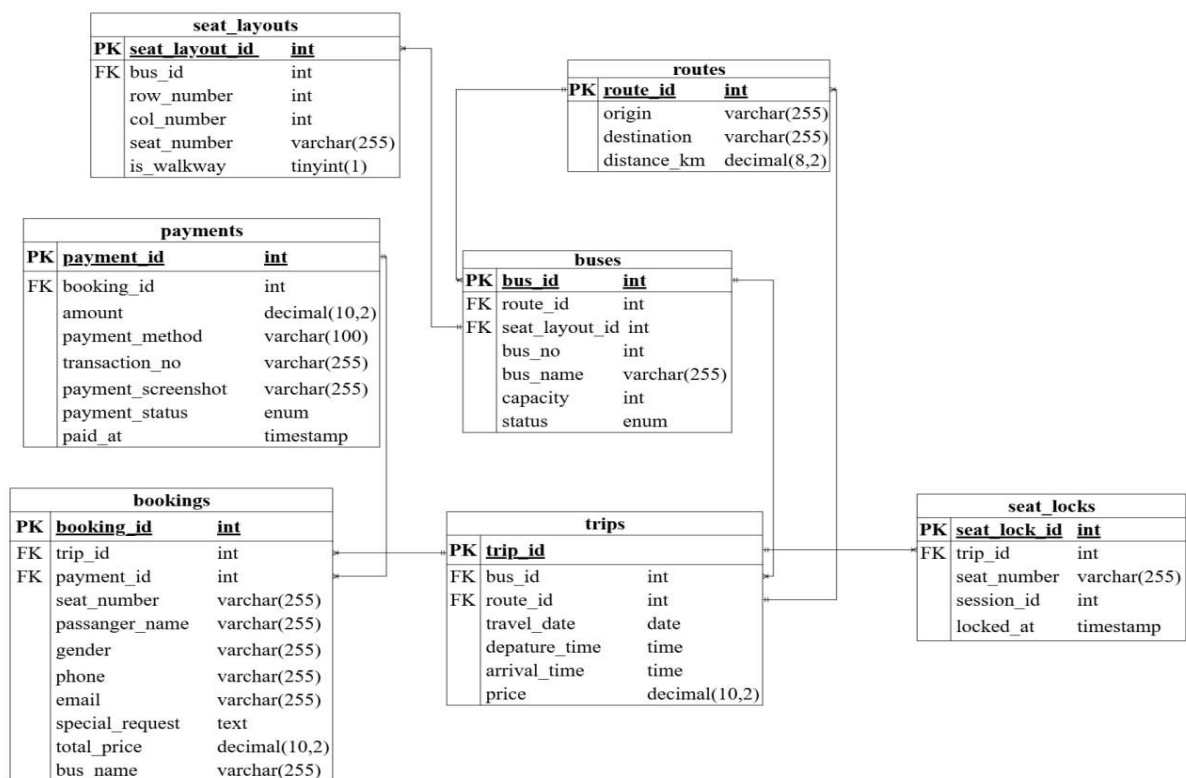


Figure 3: Database Architecture

Figure 3 presents the Entity Relationship Diagram (ERD) for the Bus Booking System, illustrating the database structure and relationships between key entities. The ERD serves as the foundation for data modeling, ensuring referential integrity and efficient querying through well-defined primary and foreign keys. In the Bus Booking System, the ER diagram consists of nine main tables:

- buses - Stores fleet details, seating capacity, and operational status.
- routes - Manages travel paths, origins, destinations, and total distance.
- trips - Schedules specific bus journeys with departure/arrival times and fares.
- bookings - Records passenger reservations, selected seats, contact details, and booking status
- payments - Tracks transaction records, payment methods, and verification statuses.
- seat\_layouts - Defines the physical seat grid and aisle configurations for buses.
- seat\_locks - Temporarily reserves seats during checkout to prevent duplicate bookings.

Each table is interconnected using primary and foreign keys to ensure referential integrity. The ERD defines cardinality (one-to-many, many-to-one) to reflect the real-world structure of how buses, routes, trips, bookings, and passengers are related.

## RESULTS

The Online Bus Booking System streamlines route scheduling, passenger seat reservations, and payment verification into a unified platform. Authorized administrators can access a dedicated dashboard to manage bus fleets, configure route networks, schedule trips, manage user accounts, and review submitted payment slips (such as KBZPay, CB Pay, WavePay, and AYA Pay) before approving bookings. Passengers can easily search available routes by origin, destination, and travel date without requiring prior registration, select seats via an interactive layout, and secure their seats through a temporary locking mechanism during checkout. Upon payment confirmation, the system generates downloadable digital e-tickets complete with scannable QR codes for seamless boarding verification.

Built with PHP, the Laravel framework, Blade templates, Vanilla JavaScript, and a MySQL relational database, the platform follows an MVC pattern structured with a Service-DAO architecture for high maintainability and testability. Eloquent ORM enforces data consistency across bookings, trips, seat allocations, and payments. Hosted on an Apache/Nginx web server, the system eliminates manual booking overhead, prevents seat duplication, and provides a responsive, reliable booking experience.

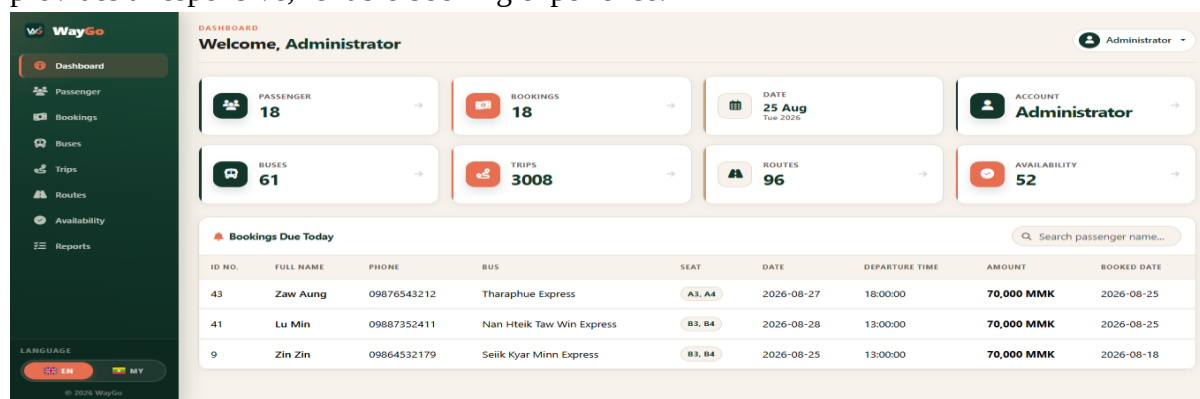


**Figure 4: Admin Dashboard with Real-time Key Metrics and Today's Due Booking**

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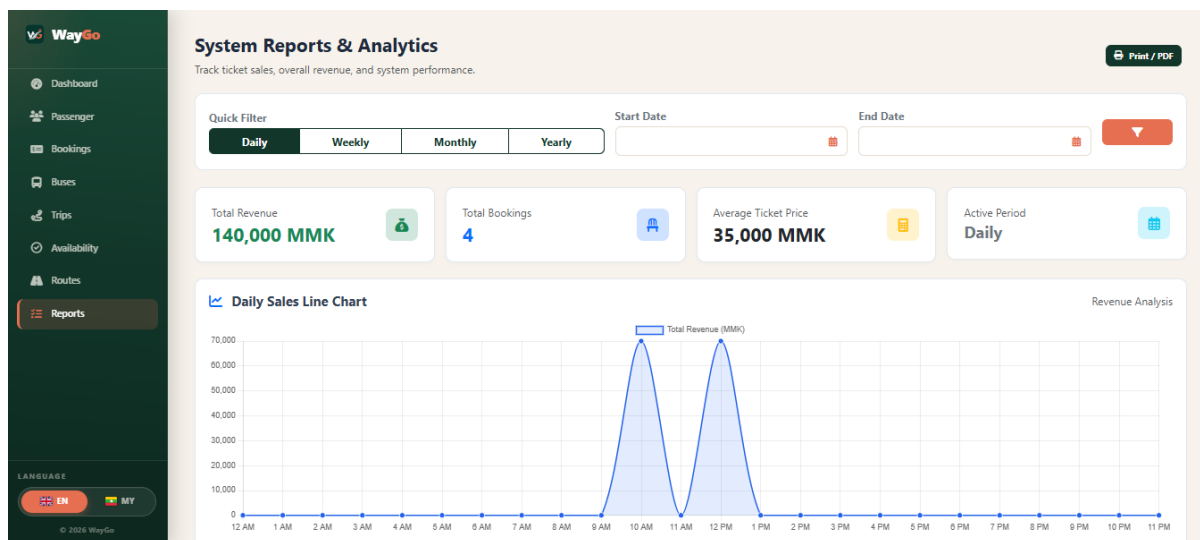


**Figure 5: Sales Analytics and Revenue Line Chart Interface**

## CONCLUSION

The Online Bus Booking System was developed to streamline route scheduling, seat reservations, and ticketing operations into a centralized platform. It addresses the inefficiencies of manual ticketing and counter-based booking by providing an intuitive system where passengers can search routes, select seats in real time, and confirm bookings with digital payments. This project reduces administrative workload, minimizes double-booking errors through temporary seat-locking mechanisms, and accelerates verification workflows with scannable digital e-tickets. By leveraging modern technologies including PHP, Laravel, Blade templates, and MySQL structured around a Service-DAO architecture, the application is built to be scalable, maintainable, and reliable. In conclusion, the system serves as an efficient solution for transport operators and travelers alike, delivering transparent booking management, robust transaction tracking, and an accessible ticketing experience.

## REFERENCES

- [1].Matt Doyle, “Beginning PHP 5.3”, 1<sup>st</sup> Edition, Wiley Publishing, ISBN-10: 9780470413968x, 2009.
- [2].Tom Bulter and Kevin Yank, “PHP & MySQL Novice to Ninja”, 7<sup>th</sup> Edition, Site Point Pty, Limited, Australia, 2024. [http://classes.jgspectrum.com/classes/320\\_S24/LectureNotes/1-13\\_PHP\\_and\\_MySQL\\_Novice\\_to\\_Ninja\\_ed7\\_with\\_highlights.pdf](http://classes.jgspectrum.com/classes/320_S24/LectureNotes/1-13_PHP_and_MySQL_Novice_to_Ninja_ed7_with_highlights.pdf).
- [3].O’Reilly, “Head First PHP & MySQL”, 1<sup>st</sup> Edition, O’Reilly Media, Inc., 2008.
- [4]. Janet Valade, “PHP 5 For Dummies”, Hoboken, NJ: Wiley Publishing. ISBN: 0764541668, Indianapolis, Indiana, 2004.
- [5].Paul McFedries, “HTML, CSS, & JavaScript All-in-One for Dummies”, 1st Edition, Wiley Publishing, ISBN: 978-1-394-16472-1, 2023.
- [6].Myat Thazin Soe, “PADDY PESTS INFORMATION SYSTEM”, University Journal of Student Projects and Research, Volume 1, 2024, Hinthada, Myanmar, <https://ucsh.edu.mm/wp-content/uploads/2024/10/PADDY-PESTS-INFORMATION-SYSTEM.pdf>
- [7].Nanda Kyaw, Saw Hla Nandar, “SmartGrade: Grading Certificate Information System (Client-Server)”, University Journal of Student Projects and Research, Volume 2, 2025, [www.ucsh.edu.mm](https://ucsh.edu.mm)

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[www.ucsh.edu.mm](https://ucsh.edu.mm)

- Hinthada, Myanmar, <https://ucsh.edu.mm/wp-content/uploads/2025/10/SmartGrade-Grading-Certificate-Information-System.pdf>
- [8]. Lin Lat Nay Chi, Nilar Kyaw , “Construction Materials Inventory Management System”, University Journal of Student Projects and Research, Volume 2, 2025, Hinthada, Myanmar, <https://ucsh.edu.mm/wp-content/uploads/2025/10/Construction-Materials-Inventory-Management-System.pdf>
- [9]. Win Lei Lei Htun, Hnin Wutt Yee Zaw, “Dhamma Online Learning Platform”, University Journal of Student Projects and Research, Volume 2, 2025, Hinthada, Myanmar, <https://ucsh.edu.mm/wp-content/uploads/2025/10/Dhamma-Online-Learning-Platform.pdf>
- [10]. Nan Hsu Wai, “The Fashion Shop Online Platform”, University Journal of Student Projects and Research, Volume 2, 2025, Hinthada, Myanmar, <https://ucsh.edu.mm/wp-content/uploads/2025/10/The-Fashion-Shop-Online-Platform-1.pdf>