International Journal Software Engineering and Computer Science (IJSECS)
5 (2), 2025, 879-886
Published Online August 2025 in IJSECS (http://www.journal.lembagakita.org/index.php/ijsecs)
P-ISSN: 2776-4869, E-ISSN: 2776-3242. DOI: https://doi.org/10.35870/ijsecs.v5i2.5135.

RESEARCH ARTICLE Open Access

Implementation of a Web-Based Booking and Monitoring Information System at Tirta Jawi Resort Using Laravel and Midtrans Payment Gateway Integration

Della Fitriastuti *
Department of Information Systems, Universitas Duta Bangsa Surakarta, Surakarta City, Central Java Province, Indonesia.
Corresponding Email: della123.ds57@gmail.com.

Annisa Zalzabilla Rahmawati
Department of Information Systems, Universitas Duta Bangsa Surakarta, Surakarta City, Central Java Province, Indonesia.

Muhammad Fahrudin Wahyu Nugroho
Department of Information Systems, Universitas Duta Bangsa Surakarta, Surakarta City, Central Java Province, Indonesia.

Zulaikha Hesty Rahmawati
Department of Information Systems, Universitas Duta Bangsa Surakarta, Surakarta City, Central Java Province, Indonesia.

Received: July 13, 2025; Accepted: July 25, 2025; Published: August 1, 2025.

Abstract: Information technology transformation has reshaped operational landscapes across industrial sectors, particularly tourism. Tirta Jawi Resort, operating as a local tourism destination, experiences operational bottlenecks in managing ticket and facility reservations through manual processes. The research develops a web-based information system to streamline reservation procedures, facility monitoring, and digital payment integration via the Midtrans platform. The system employs Laravel framework with prototyping methodology, enabling gradual user requirement validation. Primary functionalities include swimming pool ticket reservations, villa and pavilion bookings, restaurant menu orders, real-time transaction reporting, and Midtrans payment gateway integration. System evaluation utilizes PIECES analysis to measure operational performance improvements, process efficiency, and service quality enhancement. Implementation results demonstrate substantial improvements in transaction processing speed, operational monitoring ease, and manual recording error reduction. The system generates added value through round-the-clock service accessibility, automated reporting transparency, and digital market expansion, enabling the resort to strengthen competitive positioning within tourism digitalization trends.

Keywords: Reservation information System; Laravel; Midtrans; Payment Gateway; Web-based Monitoring; Tirta Jawi Resort; Prototyping.

1. Introduction

Exponential growth in information technology has fundamentally reshaped operational paradigms across industrial sectors, particularly tourism. Information systems have become the backbone for enhancing service quality, operational efficiency, and user satisfaction in today's digital era. The tourism sector, especially local destinations, faces mounting pressure to undergo digital transformation to meet visitor expectations for seamless access, rapid service delivery, and real-time information accessibility. Tirta Jawi Resort, a local tourism destination offering swimming pool facilities, villas, pavilions, and restaurants, continues to rely on manual management systems for operations. Manual processes encompass ticket booking, facility reservations, and transaction recording, potentially creating various operational challenges. Frequently encountered obstacles include scheduling conflicts, delayed service responses, limited real-time monitoring capabilities, and heightened risks of recording and financial reporting errors.

Previous research has demonstrated the urgent need for integrated web-based information systems in tourism facility management. Jefi *et al*. (2023) proved that implementing web-based ticket sales information systems significantly enhances operational efficiency and customer satisfaction [1]. Aligned with these findings, Amin *et al*. (2024) emphasized that integrating Customer Relationship Management into website-based tourism ticket sales systems optimizes customer relationships and improves service quality [2]. Furthermore, Usman (2019) identified that web-based ticket booking information systems eliminate geographical and temporal limitations in service access [3]. Basri *et al*. (2022) strengthened the argument by showing that designing ticket booking systems using prototype methodology accommodates user needs more effectively [4]. Sutabri (2023) also affirmed the significance of risk management analysis in information system implementation to ensure operational sustainability [5]. Regarding digital payment integration, Setiawan *et al*. (2023) demonstrated that optimizing Midtrans payment gateway functions through prototype methodology enhances online transaction security and efficiency [6]. Purba (2020) supported these findings by stating that online booking information systems increase service accessibility for consumers [7]. Nurhasanah *et al*. (2022) further underlined that business service digitalization expands market reach and strengthens competitiveness [8].

Specific tourism sector research by Christi *et al*. (2023) demonstrated successful implementation of online e-ticket booking systems using Laravel framework in improving tourism service efficiency [9]. Arrahman & Mulyono (2021) also validated the effectiveness of web-based booking information systems in enhancing hospitality service quality [10]. Nistrina & Lestari (2024) reinforced the argument by showing that website-based information system design improves service professionalism and attractiveness [11]. Based on the literature review, a gap exists between information technology potential and actual implementation at local tourism destinations. The research aims to design and implement a web-based information system specifically for Tirta Jawi Resort using Laravel framework integrated with Midtrans payment gateway. Prototyping development methodology was selected to facilitate iterative and continuous user requirement validation.

The developed system encompasses core functionalities including: online swimming pool ticket booking with user-friendly interfaces; villa, pavilion, and restaurant menu reservations with real-time availability systems; digital payment integration through Midtrans for transaction security and convenience; plus monitoring and transaction data reporting modules to support management decision-making. System implementation is expected to bridge the gap between traditional tourism service management and modern digital technology integration. Research outcomes include enhanced operational efficiency, improved data management accuracy, and sustained visitor satisfaction at Tirta Jawi Resort. Additionally, the study can serve as a reference for other local tourism destinations in adopting digital transformation to strengthen competitiveness in the Industry 4.0 era.

2. Related Work

The development of web-based information systems for tourism and hospitality management has attracted considerable research attention, with Laravel framework becoming increasingly popular among developers building robust, scalable applications. Laravel's architectural design and built-in security features make it particularly suitable for tourism management platforms that require complex user interactions, real-time data processing, and secure transaction handling [19]. Recent studies have demonstrated the effectiveness of web-based solutions in tourism sector digitalization, with Jefi *et al*. (2023) establishing that implementing web-based ticket sales information systems significantly improves operational efficiency and customer satisfaction in tourism facilities [1]. Building on these findings, Amin *et al*. (2024) showed that integrating Customer Relationship Management into website-based tourism ticket sales systems optimizes customer relationships while enhancing service quality [2]. Usman (2019) validated the benefits of web-based ticket booking systems, demonstrating their ability to eliminate geographical and temporal limitations in service

access [3]. The research emphasized how digital platforms enable 24/7 accessibility, allowing customers to make reservations and purchases regardless of location or time constraints. Basri *et al*. (2022) reinforced these findings by showing that designing ticket booking systems using prototype methodology more effectively accommodates user requirements and ensures system usability [4]. The Laravel framework has proven particularly effective for developing tourism-related applications due to its modular architecture and extensive feature set. Ramelan *et al*. (2021) demonstrated Laravel's capability in handling substantial data transactions through their energy management system that integrates with Internet of Things (IoT) technologies [17]. Their research revealed Laravel's ability to process real-time data efficiently, a crucial requirement for tourism booking systems that must handle concurrent reservations and availability updates.

Ananda *et al*. (2023) provided valuable insights into Laravel's data management capabilities through their human resource management system development [13]. Their work illustrated how Laravel facilitates secure data management and retrieval processes, which directly applies to tourism systems requiring customer data protection and transaction security. The study emphasized Laravel's built-in authentication and authorization mechanisms, essential features for multi-user tourism platforms. Payment gateway integration represents a critical aspect of modern tourism information systems, with Setiawan *et al*. (2023) demonstrating successful optimization of Midtrans payment gateway functions using prototype methodology, showing enhanced online transaction security and efficiency [6]. Their research provided practical implementation strategies for integrating third-party payment processors with web-based booking systems. Kurniasari *et al*. (2023) emphasized the necessity for integrated web-based services in e-commerce environments involving complex logistics and administrative operations [15]. Their research underscored the importance of seamless systems capable of managing diverse processes simultaneously, directly relevant to tourism facilities offering multiple services such as accommodation, dining, and recreational activities. The study revealed how integrated systems reduce operational complexity while improving service delivery. The application of agile development methodologies in tourism system development has shown promising results, with Fardela *et al*. (2023) discussing the importance of quick adaptation in monitoring applications for public services, demonstrating how agile approaches enable rapid response to user feedback and changing requirements [14]. Such methodology proves particularly valuable for tourism systems where customer preferences and market conditions evolve rapidly.

Sartika *et al*. (2024) further supported the use of web-based platforms for service delivery, showing how modern frameworks enable integration of diverse functionalities including real-time monitoring and reporting capabilities [18]. Their work demonstrated the scalability potential of Laravel-based applications, crucial for tourism facilities experiencing seasonal demand variations. Effective data management and monitoring capabilities are essential for tourism facility operations, with Muljo *et al*. (2022) exploring database system design for storing and managing large datasets, emphasizing the importance of efficiency and responsiveness in data retrieval operations [16]. Their research provided insights into optimizing database performance for applications requiring frequent data access and updates, directly applicable to tourism booking systems. Warman and Asrizon (2021) demonstrated the effectiveness of web-based monitoring and evaluation systems, showing how real-time tracking capabilities enhance operational oversight and decision-making processes [20]. Their work illustrated the importance of monitoring features in service delivery platforms, enabling administrators to track system performance and user interactions effectively. The broader digital transformation in tourism has been extensively studied, with Nurhasanah *et al*. (2022) demonstrating that business service digitalization expands market reach and strengthens competitive positioning [8]. Their research showed how digital platforms enable tourism businesses to access broader customer bases while improving service accessibility and quality.

Christi *et al*. (2023) provided practical evidence of successful online e-ticket booking system implementation using Laravel framework, specifically in tourism service environments [9]. Their study validated the framework's effectiveness in improving operational efficiency while maintaining system reliability and user satisfaction. Arrahman and Mulyono (2021) reinforced these findings by demonstrating how web-based booking information systems enhance hospitality service quality and customer experience [10]. While existing research has established the benefits of web-based tourism information systems and Laravel framework implementation, few studies have focused on integrating multiple tourism services within a single platform. Previous research has typically addressed individual aspects such as ticket booking, payment processing, or facility management separately. Additionally, limited research has examined the specific implementation challenges and solutions for local tourism destinations with diverse service offerings. The current research addresses these gaps by developing an integrated web-based information system that combines ticket booking, facility reservations, dining services, and payment processing within a unified Laravel-based platform. The study adds to the existing knowledge base by providing practical implementation strategies for multi-service tourism platforms while demonstrating the effectiveness of prototype development methodology in ensuring user requirement validation and system usability.

3. Research Method

The study employs a prototyping development approach aimed at creating an information system that meets user requirements through iterative processes. Such methodology allows users to provide direct feedback on initial system designs, enabling gradual improvements and refinements. Research was conducted at Tirta Jawi Resort, located in the local tourism area of Klaten Regency, Central Java. Data collection, system development, and implementation processes took place from February to May 2025. Several data collection techniques were utilized across multiple stages: observation of manual booking and transaction processes at the location, interviews with resort management and operational staff to understand system requirements, and literature review of scientific journals and similar system documentation as design references. The information system was built using various tools and platforms including PHP programming language with Laravel 10 framework; MySQL/MariaDB database for storing transaction data, schedules, and user information; Blade Template Laravel and Bootstrap for user interface frontend; Midtrans payment gateway integration supporting digital payments (bank transfers, QRIS, e-wallets); XAMPP/Laragon servers during development phase, with deployment to hosting servers during implementation.

The study follows system development stages aligned with the prototyping model. User requirement identification involved collecting functional and non-functional system needs from observation and interview results, then analyzing them to determine development scope. Initial prototype creation included designing preliminary system workflows for ticket booking, villa and pavilion reservations, plus Midtrans integration simulation. Evaluation and feedback processes involved stakeholder testing of prototypes, with user input used to revise the system for better field compatibility. Final system development and implementation occurred after receiving user approval, with full system development and production environment deployment. System testing and performance evaluation utilized PIECES analysis approach (Performance, Information, Economy, Control, Efficiency, and Service) to assess service improvement levels achieved.

The prototyping methodology was selected because it allows for flexible adaptation to user needs while reducing development risks through early validation. Each iteration cycle provided opportunities to refine system features based on actual user experiences rather than theoretical assumptions. The approach proved particularly valuable for tourism management systems where user requirements often evolve during development as stakeholders better understand digital platform capabilities. Regular feedback sessions with resort staff ensured the final system would integrate smoothly with existing operational procedures while introducing efficiency improvements. Development tools were chosen based on their proven reliability in similar tourism applications and their ability to handle concurrent user sessions during peak booking periods. Laravel framework offered robust security features essential for payment processing and user data protection, while MySQL database provided the scalability needed for handling reservation data across multiple service categories. The Midtrans payment gateway integration was specifically selected for its wide acceptance among Indonesian users and its comprehensive support for various payment methods commonly used in the local tourism market.

4. Result and Discussion

4.1 Results

The booking and monitoring information system for Tirta Jawi Resort was successfully developed as an integrated web application supporting swimming pool ticket reservations, villa and pavilion bookings, restaurant food orders, and real-time transaction reporting. The system adopts a Business to Consumer (B2C) model, allowing customers to complete the entire reservation and payment process independently through digital devices without visiting the location directly. Key system features include: User registration and login (customers and administrators), Digital ticket booking for swimming pools with QR codes, Villa and pavilion reservations with availability calendars and automated payment systems, Online food ordering through restaurant menus, Transaction monitoring and booking history, Administrative dashboard for managing facilities, event schedules, galleries, food menus, and financial reports. The system was built using Laravel as the backend framework and Midtrans for digital payment integration.

The frontend interface was designed with Bootstrap and Blade Templates to deliver a responsive and intuitive user experience. The following shows the website screenshots that were created; Figure 1 displays the administrator login interface that enables access to the system management panel (Figure 1). Figure 2 shows the main admin dashboard presenting real-time operational statistics of the resort (Figure 2). Figure 3 demonstrates the villa data management page allowing administrators to add, edit, and delete villa information (Figure 3). Figure 4 presents the villa availability calendar that helps administrators monitor booking schedules (Figure 4).

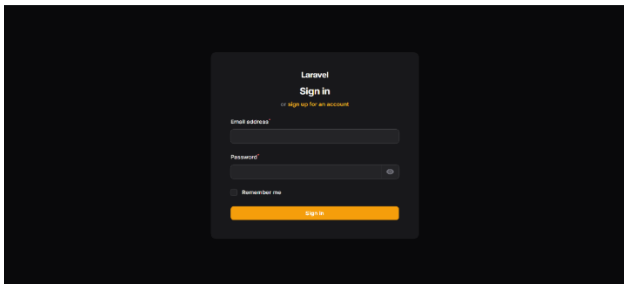

Figure 1. Login Page

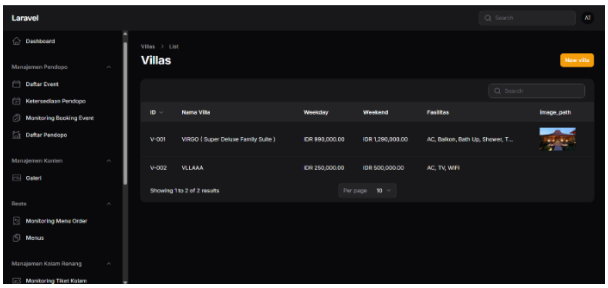

Figure 3. Villa Data Page

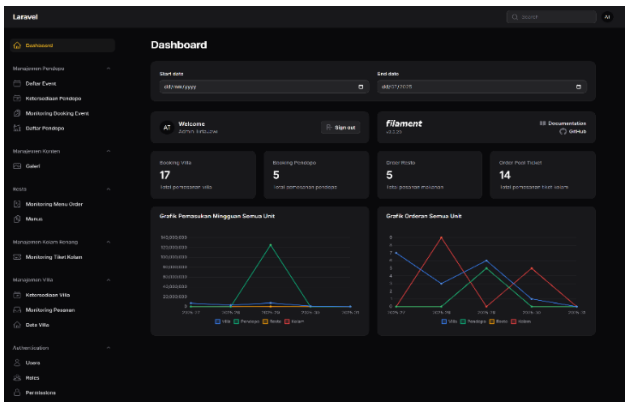

Figure 2. Dashboard Page

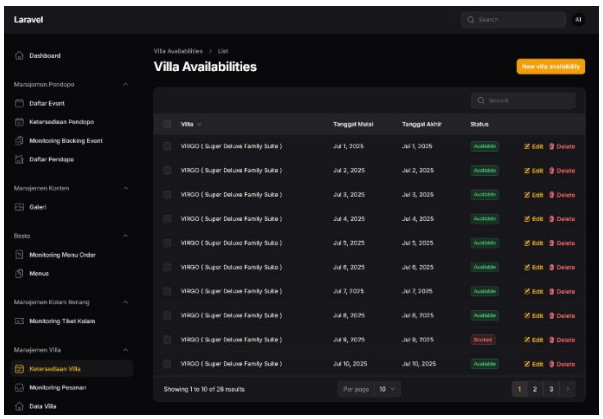

Figure 4. Villa Availability Page

Beyond these four main pages, the system also includes a villa booking monitoring page that displays reservation lists with payment status and detailed customer information. The pavilion data page allows administrators to manage pavilion facility information for various types of events and occasions. The pavilion availability system uses an intuitive calendar display to facilitate checking available time slots. The event list page shows various event packages that can be organized at the pavilion with detailed pricing and provided facilities. The event and pavilion booking monitoring feature provides administrators with easy access to track confirmation status and customer payments. The restaurant menu list page enables management of food and beverage catalogs with an organized category system. Menu order monitoring displays customer food orders with preparation status that can be updated in real-time. The swimming pool ticket monitoring page shows daily ticket sales data along with visitor information entering the pool area. The system also includes a gallery page that allows administrators to upload and manage resort facility photos for promotional purposes and customer information. The user management page gives administrators full control to manage system user data for both administrators and registered customers.

From the customer perspective, the system provides a user-friendly login interface with responsive design. The registration page features a complete registration form with a data validation system ensuring customer information accuracy. The customer dashboard was designed with easy-to-understand navigation, providing quick access to various services available at the resort. The villa catalog displays complete information for each villa unit with high-quality photos, facility descriptions, and transparent pricing information. The villa detail page provides a thorough overview of available facilities, including interior and exterior photo galleries of the villa. The villa booking form includes an interactive date selection system and automatic cost calculation based on stay duration. The integrated payment system generates detailed digital invoices with various payment method options through Midtrans. The pavilion and event list page provides information about event packages that customers can choose according to their needs and budget. The online restaurant menu allows customers to order food and beverages with a practical shopping cart system. The swimming pool ticket purchase feature includes a visit date selection system and automatic QR code generation for easy access. The "My Bookings" page provides customers with convenience to monitor their entire booking history with clear confirmation and payment status. The logout system was designed with security confirmation to protect customer data.

The evaluation was conducted using the PIECES approach covering six aspects: Performance, Information, Economics, Control, Efficiency, and Service. The analysis results are presented in Table 1 below:

Table 1. PIECES Analysis of Old System vs New System

No	Aspect	Old System (Manual)	New System (Digital)
1	Performance	Slow transaction process, long queues, error-prone recording	Fast process, real-time, automatic tickets
2	Information	Information only available verbally/brochures, not updated	Complete & current online info: schedules, prices, facilities
3	Economics	High costs (ticket printing, HR), unmonitored revenue	Operational cost efficiency, revenue potential from digital promotion
4	Control	No digital history, difficult visitor control	Available transaction data, quotas, and automatic reports
5	Efficiency	Many staff needed, prone to queues, manual processes	Fast & efficient processes, labor-saving
6	Service	Service limited to working hours, doesn't reach outside tourists	24/7 service, accessible from anywhere via phone/laptop

4.2 Discussion

The web-based booking and monitoring system at Tirta Jawi Resort has transformed how the resort operates and serves customers. Digital transformation in tourism isn't just a trend anymore—it's become necessary for survival in today's competitive market [1][2]. The new system processes reservations instantly, eliminating the frustrating wait times that customers previously experienced with manual booking methods. Jefi *et al*. (2023) found similar improvements when they implemented web-based ticketing for tourism attractions [1]. Payment processing through Midtrans has been a game-changer. Customers can now pay using their preferred methods—whether that's e-wallets, bank transfers, or QRIS codes. The variety matters because different customers have different comfort levels with payment technology. Setiawan *et al*. (2023) discovered the same thing when they optimized payment systems for coffee shops—offering multiple payment options significantly improved customer satisfaction [6].

Resort managers now have access to real-time data about bookings, revenue, and facility usage. Before the system, they relied on handwritten logs and manual calculations to understand their business performance. The automated reporting feature saves hours of administrative work each week, freeing up staff to focus on what really matters: taking care of guests. The dashboard shows patterns that weren't visible before, like which villas are most popular during different seasons or what times of day generate the most restaurant orders [4]. The Business-to-Consumer approach works particularly well for smaller tourism businesses like Tirta Jawi Resort. Instead of depending on travel agents or booking platforms that take commissions, the resort can now connect directly with customers. The system operates around the clock, which means potential guests from different time zones can make reservations whenever it's convenient for them [8]. A family planning a weekend getaway can book their villa at midnight if they want to. Using the prototyping method during development made a real difference. Rather than building something in isolation and hoping it would work, the development team involved actual users from day one. Resort staff and customers tested early versions and provided feedback that shaped the final product. The result is a system that actually solves real problems rather than creating new ones [4].

The Laravel framework provides a solid foundation for future growth. As the resort expands its services or attracts more customers, the system can handle increased demand without major overhauls. The modular design means new features can be added gradually—perhaps a customer loyalty program next year, or integration with social media platforms for marketing [17][19]. The architecture won't become obsolete as technology evolves. Success depends on more than just good software, though. Staff members need proper training to use the system effectively. Regular maintenance keeps everything running smoothly and protects customer data from security threats. Most importantly, the resort needs to keep listening to user feedback and making improvements based on what they learn.

Other tourism businesses facing similar challenges could benefit from comparable systems. The improvements at Tirta Jawi Resort—reduced paperwork, happier customers, better financial visibility—demonstrate what's possible when traditional operations embrace digital tools. The investment in technology pays off through improved efficiency and expanded market reach. The system has proven that small tourism businesses don't need massive budgets to compete in the digital age. Smart implementation of proven technologies can level the playing field and create opportunities that didn't exist before. For Tirta Jawi Resort, the booking system represents more than just operational improvement—it's a foundation for future growth and customer service excellence.

5. Conclusion

The research successfully developed a web-based booking and monitoring information system tailored for Tirta Jawi Resort operations. The platform handles swimming pool ticket bookings, villa and pavilion reservations, food orders, transaction reports, and real-time data monitoring. Using prototyping methodology allowed users to participate directly in system development and refinement, ensuring the final product matched actual operational needs. Midtrans payment gateway integration enables secure, fast digital transactions for customers. The new system boosted operational performance, accelerated service delivery, and eliminated errors common in manual processes. PIECES analysis revealed significant improvements over the previous system, particularly in performance, control, efficiency, and service quality. The information system benefits both visitors and management. Guests can make independent bookings anytime, while resort operators monitor daily activities and generate automated financial reports. The platform demonstrates how local tourism destinations can embrace digitalization to enhance professionalism and market competitiveness.

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