Transforming Agritourism with Technology: Digital Durian Booking System in Johor Malaysia

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ABSTRACT

The Durian Spot Reservation System is an innovative digital platform that was developed to bridge the gap between durian farm owners in Johor and potential customers around the world. Guided by user needs and advisor feedback, the system simplifies the booking process, enhances accessibility to fresh durians, and introduces efficiency for sellers. The system accommodates users of varying ages through an intuitive web interface. Although not addressing the full durian supply right the moment, but it offers an effective solution for rural-urban market linkage and supports the agritourism sector.

Keywords: Durian Reservation System, Web Application, Online Booking, SDLC, Agritourism

INTRODUCTION

Durian Spot Reservation is an innovative platform developed to support the growing demand for experiential agritourism in Malaysia (Nolasco-Cirugeda, García-Mayor et al. 2022), specifically focusing on the durian industry in Johor. The business model centers on offering customers the opportunity to enjoy freshly harvested durians directly at the farm, creating a unique and authentic farm-to-table experience(Streifeneder, Hoffmann et al. 2023, Kuo, Wang et al. 2024, Wen-Ta and Tsai 2025). Unlike traditional fruit retail, this system provides an immersive environment where customers can reserve a spot in advance and participate in a durian feast prepared straight from the orchard. This not only enhances customer satisfaction but also introduces a new revenue stream for durian farm owners(Barcaroli, Fusco et al. 2016, Khampusaen, Naiyanit et al. 2024).

The system is designed to support a broad audience, including local customers and individuals from urban centers who are geographically distant from the farm(Katsoni and Dionysopoulou 2015). With the integration of web-based technology, even international customers, particularly from neighboring countries such as Singapore, can effortlessly book their place without the hassle of dealing with long queues or overcrowded venues(Ananya 2021, Deda and Zaka 2024). By minimizing physical barriers, the system helps widen the market reach while maintaining a smooth and efficient customer experience (Siregar, Ginting et al. 2024).

In today's rapidly advancing digital landscape, businesses must adapt to evolving consumer behaviors and technological expectations. For durian farm owners, particularly those in rural or underserved areas, adopting digital platforms like this system provides a strategic advantage. The platform not only simplifies the reservation and customer management process but also reduces the burden of manual labor such as fruit sorting and cleaning before sale (Jayantini, Martiningsih et al. 2024). Additionally, the automation of booking and communication processes significantly reduces operational overhead, allowing farm owners to focus on quality control and customer service (Utama, Widia et al. 2025).

From a usability perspective, the Durian Spot Reservation System is developed with inclusivity in mind. Its

interface is intentionally designed to be intuitive (Katsoni and Dionysopoulou 2015, Encalada, Ferreira et al. 2019) and accessible for users of all age groups, from tech-savvy youth to elderly customers(Muwani, Marime et al. 2024, Roy and Das 2025). This approach ensures that the system is not limited to a specific demographic, promoting broader adoption across various user profiles(Mahida 2025).

Ultimately, this project brings mutual benefits to both durian farm owners and their customers. While owners enjoy increased visibility, reduced labor needs(Stancioiu, Ionica et al. 2025), and access to a larger market, customers are granted a seamless and enjoyable durian dining experience. The system not only addresses logistical challenges but also contributes to waste reduction and enhances customer satisfaction(Goyal, Chadha et al. 2023). This blend of digital innovation with traditional agriculture represents a modern solution to the evolving needs of Malaysia's agribusiness sector.3.

LITERATURE REVIEW

Rural areas, as an important research theme, are always associated with challenges, such as economic crisis, health crisis or migration crisis. Therefore, existing research will pay more attention to the role of smart tourism in rural areas with crisis(Lalisan, Fresnido et al. 2024, Ye, Shi et al. 2025), discussing the integration of rural tourism resources, coordinating the development and protection of rural tourism, focusing on the balanced and coordinated development of rural industry and ecology optimizing the rural products and services(Hu, Chao et al. 2025), and enhancing the rural tourist flow.. It can be found that smart rural tourism construction has a positive impact on rural development. Specifically, related studies discuss around the role of smart technology in the dimensions of rural development(Pérez-Olmos and Aguilar-Rivera 2021). Economically, smart tourism can broaden the source market with the help of big data precision marketing, and some villages promote rural characteristics and agricultural experience activities through tourism

However, there are also some gaps in the existing research. Some studies focus on the application of technology, but rural revitalization is a complex systematic project. It is obviously unlikely that overall rural development can be promoted solely by smart technologies(Kumar and Shekhar 2020). Besides, some of the studies lacks an in-depth analysis of the actual effects and differences in the villages of different regions. Given the varying levels of economic development across different regions in China, existing research has not adequately addressed rural development in economically advanced areas. Additionally, the research on the coordination mechanisms of diverse stakeholders' interests in the construction of smart rural tourism is still insufficient.

Urgent attention to the urban residents' contribution to rural development. These gaps provide a direction and space for subsequent research, helping in- depth exploration of smart rural tourism construction research and practice optimization(Rauniyar, Awasthi et al. 2021)

METHODOLOGY

The system development process followed the Rapid Application Development (RAD) model, which includes four major phases which is requirement planning, user design, construction, and cutover. This model allowed for iterative feedback from end users throughout the project lifecycle. Requirement planning involved interviews with durian farm owners, as well one of the potential customers. Other than that, surveys were conducted targeting potential customers. The collected data guided the system features such conducted using Figma, while the diagrams were produced using Draw.io. Other than that, Visual Studio Code was served as the development environment, and MySQL was used for database management. The system was coded in PHP, HTML, CSS and JavaScript. User Acceptance Testing (UAT) and real- time deployment were conducted using the university's hosting platform, providing a semi-live environment for test users.
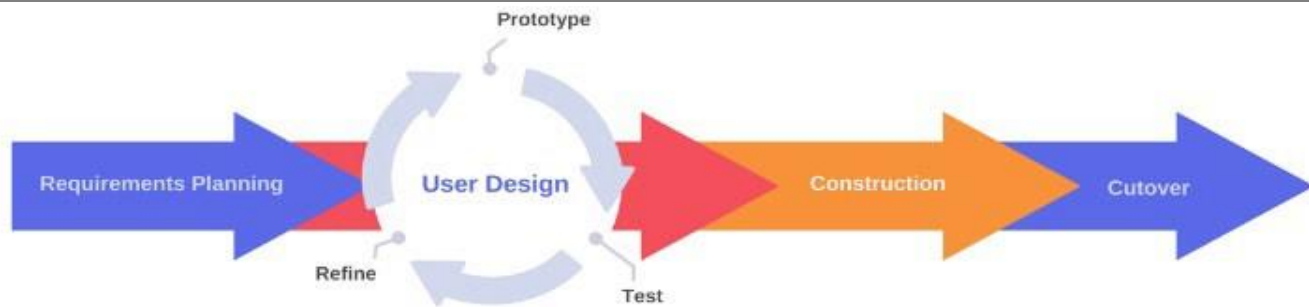
Fig. 1: Figure of Rapid Application Development (RAD) (Goyal, Chadha et al. 2023)

RESULTS AND DISCUSSION

Durian Spot Reservation System consists of three main user roles: customer, owner, and administrator. Customers can register, select available time slots, packages, and upload payment proof. The owner can add, modify, or remove reservation packages and view all incoming bookings. Admins have overarching control including database visibility and user management. The interface is designed for minimal complexity, using clear labels and navigation, ensuring even non-tech-savvy users can easily complete bookings. The backend system ensures data integrity and prevents double booking by synchronizing booking slots in real-time. The system architecture includes normalized relational tables for user accounts, reservations, packages, schedules, reviews, and payments. Dynamic validation and file handling ensure secure inputs. A confirmation alert and email verification are triggered upon successful reservation. System evaluation showed that users appreciated the speed and reliability compared to traditional phone-based reservations(Stancioiu, Ionică et al. 2025).
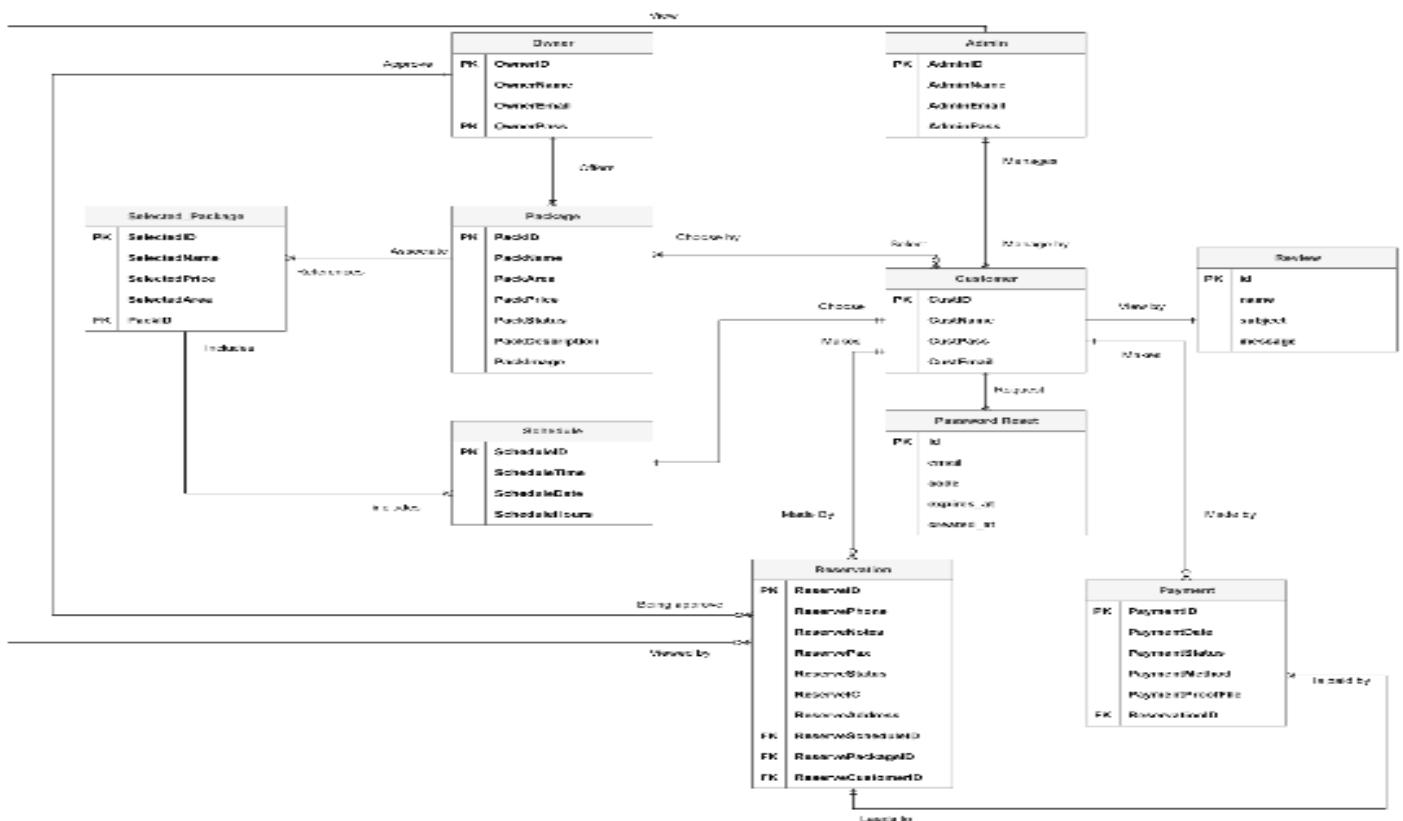

Fig. 2: Entity Relationship Diagram (ERD) of the Durina Spot Reservation System.

Figure 2 illustrates the Entity Relationship Diagram (ERD) used in the Durian Spot Reservation System. The ERD represents the logical structure of the system's database and demonstrates the connections between core entities, such as Customer, Owner, Package, and Reservation. These relationships enable efficient data management and retrieval throughout the system.

Figure 3 shows the scheduling interface where users can select their preferred time slot.
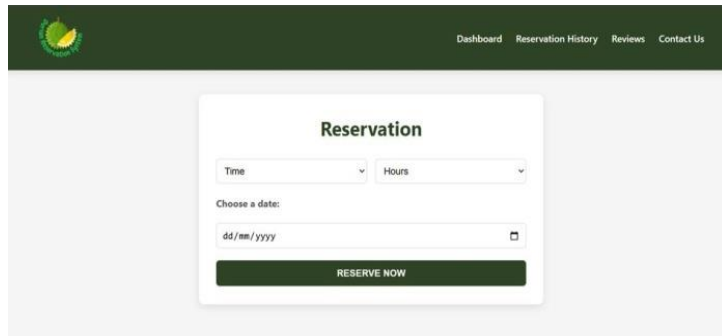

Fig. 3: Interface for schedule selection within the Durian Spot Reservation System.

The schedule interface allows customers to view and select available time slots for their durian feast reservation. Users are presented with a calendar-style layout displaying open dates and time blocks. The system dynamically checks for slot availability and disables fully booked sessions, reducing the risk of double booking. This feature enhances user convenience and helps the owner manage crowd flow efficiently.

Meanwhile, the Figure 4, shows the selecting package interface where customer can select package that have been offered to them.
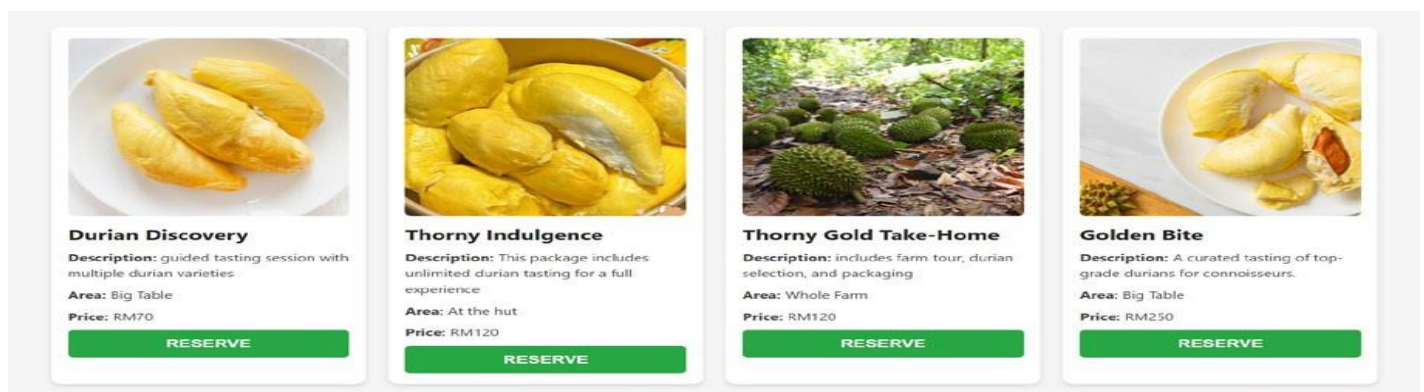

Fig. 4: User interface displaying available durian packages for selection.

This interface provides a list of durians tasting packages offered by the farm owner. Each package includes information such as description, area that they offered and price. Customers can browse and compare packages before selecting one that best suits their preferences. The visual presentation helps users make informed decisions, contributing to a better overall booking experience.

The Figure 5, shows the reservation form interface that customer needs to fill before making a reservation.
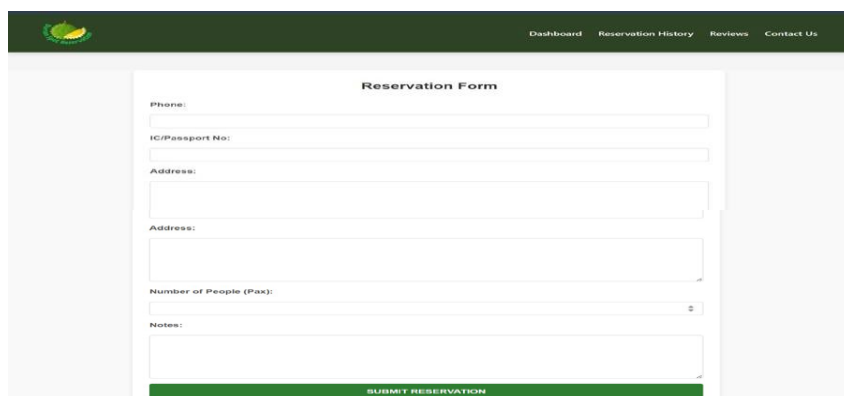

Fig. 5: Reservation form interface for customer details.

After selecting a package and schedule, users proceed to the input form where they provide personal information such as IC/Passport number, contact number, customer address, number of pax, and special requests. The built-in validation ensures completeness and accuracy of the submitted data, reducing manual errors for the farm owner or admin.

In some fields of scientific application, including water and rain measurements, massive amounts of data are rapidly becoming a shared resource. Usually, numerous data centres are used to house such massive databases. For distributed management of large datasets, the data replication approach is the method of choice.

DISCUSSION

The shift from manual to digital systems represents a significant improvement in how small-scale durian orchards operate. The Durian Spot Reservation System not only simplifies booking processes but also introduces a structured data management practice among orchard owners. Interview feedback revealed that most owners experienced reduced confusion during peak hours, and customers reported higher satisfaction due to clear booking confirmations and transparent availability. The flexibility of the RAD model enabled the system to evolve based on feedback, adding features such as special requests, QR-based payments, and real-time reservation updates. Limitations include dependency on internet access and user familiarity with web platforms, especially among elderly users. Nonetheless, the benefits outweigh the limitations, especially as rural areas increasingly gain internet access.

CONCLUSION

The In this study, we have presented the design and development of a web-based reservation system tailored for durian farm experiences. The system introduces a novel approach to managing customer bookings by providing a fully computerized platform that replaces traditional manual methods. Through this digital transformation, the reservation process becomes more efficient, transparent, and user-friendly for both customers and business owners(Marine-Roig and Clavé 2015). owners, especially those operating in rural areas, the system provides access to a broader market with minimal technical barriers.

As a whole, the Durian Spot Reservation System contributes to modernizing the durian industry by offering a reliable and efficient method for managing reservations. It also demonstrates the potential of digital systems in supporting local agribusiness and promoting rural economic growth. Future improvements may include expanding the system with mobile application support, multilingual options, and integration with third-party payment gateways to further enhance usability and scalability.

The implementation of this system enables potential customers, including those from outside the local area or even across borders, to conveniently reserve seats at the durian farm. The web-based interface allows access to real-time scheduling, reducing the need for in- person inquiries and eliminating common booking conflicts. With this improvement, customers are able to plan their visits in advance with confidence, while owners benefit from better control of booking flows and customer records.

Furthermore, the system supports the automation of key functions such as schedule management, payment tracking, and customer database organization. These features help reduce operational errors and improve the overall productivity of the business. For durian farm

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