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BOOKING HUB: WEB AND MOBILE ROOM MANAGEMENT SYSTEM FOR SAMSON'S TRANSIENT

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ABSTRACT

Many transient businesses in the Philippines still use social media apps like Facebook Messenger to handle room bookings. This causes a lot of problems such as missed reservations, double-bookings, and guest information getting lost in long chat histories. This study focuses on Samson's Transient, a transient in the Philippines that experiences these exact problems every day. The goal of this study is to build a Room Management System made up of a mobile app and a web-based admin dashboard that makes booking faster, easier, and more organized. The system was built for Android devices and includes a secure website for staff and owners to manage reservations and room availability. A local server connects the mobile app and website so that all data is updated at the same time. Testing showed that the system stopped double-bookings, made check-ins and check-outs faster, and helped staff track payments and generate reports automatically. The system also includes an online down-payment feature so that guests can secure their rooms before arriving, reducing last-minute cancellations.

Keywords: *Booking System; Mobile Application; Room Management; Transient Business; Web Dashboard*

1. INTRODUCTION

Local tourism in the Philippines is growing rapidly, which means more people are constantly looking for affordable places to stay, like transient houses [1]. In the current time, various small transient businesses rely completely on manual steps, like talking to customers on Facebook Messenger, replying to direct text messages, or writing guest names down in paper logbooks [2]. This causes major operational problems on a daily basis; business owners find it hard to keep track of who booked and what room, how to quickly respond to incoming messages to avoid losing customers, or prevent human errors like booking two different guests into the exact same room on the same calendar day [3]. When holiday seasons arrive and more tourists travel, handling everything by hand becomes completely overwhelming, leading to dissatisfied guests and lost of income to business owners [5].

To address this problem, a digital room management system can automate the entire booking process and keep all records accurate and up to date, minimizing possible human errors [2]. With the use of mobile application and web system, both the traveling guests and the business owners can easily book, manage, and update room data [1]. The purpose of this study is to design and build "Booking Hub," a system made up of a web and mobile app, designed specifically to replace manual messaging with automated room management for Samson's Transient. By tracking room bookings and down-payments automatically, the system makes the daily business workflow much easier, stops scheduling mistakes permanently, and provides better service to guests [3].

LITERATURE REVIEW

Many small lodging businesses in the Philippines, including transient houses and boarding houses, still rely on manual processes to manage their daily operations. Past research shows that the quality of service and facilities are key factors that directly affect customer satisfaction and loyalty in small accommodation businesses [3]. This makes it highly important for transient owners to adopt better automated systems that can keep up with guest needs [5]. One of the closest related studies is *AppStay*, a web-based room, dorm, and apartment reservation system developed and assessed by researchers from Nueva Ecija University of Science and Technology in Cabanatuan City, Philippines [1]. The system was built using the modified waterfall model and was tested with 50 respondents, including IT experts, students, and accommodation owners. This study is highly relevant because it was conducted in the same city as Samson's Transient and addresses the exact same type of small accommodation operations.

Another closely related study is the web-based boarding house booking system developed by Mangca [2]. The study found that a web-based booking system with notification capability was highly effective and efficient in terms of usability, functionality, and maintainability, with a user-friendly interface that made it easy for both guests and administrators to manage reservations. On the mobile side, mobile applications for lodging and room management are becoming more popular as they provide convenience for both staff and guests by allowing real-time updates and instant access to booking information [4]. Combining a mobile app with a web-based admin dashboard addresses both the guest-facing and management sides of the reservation process. These related studies confirm that developing a centralized digital reservation system for small lodging businesses is both practical and necessary. The Booking Hub system builds on these findings by combining a mobile app, a web admin dashboard, and an integrated local API into one complete solution designed specifically for a small transient in the Philippines

2. METHODOLOGY

The study used a developmental research design to build and test the Booking Hub Room Management System. Agile model was followed, meaning the research team built the software in small, manageable steps called sprints, tested each module continuously, and made improvements based on regular feedback from the owners. The development was split into four clear steps: gathering system requirements from the business, designing the software layout, coding and integrating the software parts together, and final field testing on-site. To start, the team interviewed the staff at Samson's Transient to map out their old manual steps, evaluate their physical workflow, and turn their business needs into clear programming goals.

To design the visual layout, the team created clear user profiles to understand how different people would interact with the software interfaces. The first profile focuses on guests, who need a clean mobile app or a simple website to quickly check room sizes, view amenities, look at pricing, and choose their booking dates without waiting for a chat reply. The second profile focuses on the manager and owner, who need an administrative screen to see daily income, verify down-payments, track who is currently checked in, and manage daily arrivals. Simple design rules—like clear text fonts, high-contrast colors, and large, easy-to-tap buttons—were used to ensure the app is easy for anyone to use. Detailed visual mockups and user flowcharts of the screens were drawn and finalized before writing any code.

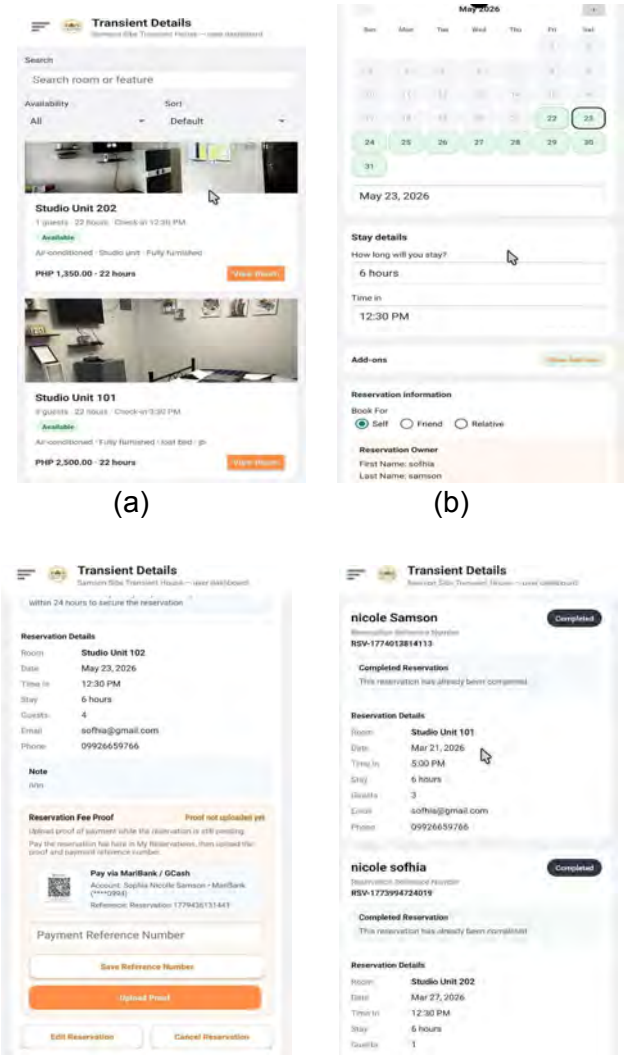
The mobile app component was built specifically for Android smartphones so guests can find and secure rooms on the go. It was programmed using clean frontend frameworks to do three core tasks: display live room availability, provide simple booking forms, and securely save guest contact details. The app workflow starts with a secure user registration and login screen, leading to a main dashboard where guests can filter rooms by price or type, view pictures of the rooms, and select their stay dates using a visual calendar. The mobile app talks directly to the backend database using structured data payloads. This means the app will instantly block a user from selecting dates that are already booked by someone else, ensuring perfect accuracy. The app was exported as a standard Android Package file for real-world user testing.

At the same time, the web platform was built using secure backend programming frameworks and a relational database to manage user accounts, booking sheets, and system safety. The website layout was separated into public zones for browsing guests and locked management dashboards for authorized staff. The admin dashboard features a main dashboard screen that tracks active check-ins, system warnings, and visual income graphs, alongside special tabs to edit room prices, update pictures, and view the reservation calendar grid. System security was enforced using data encryption, verification loops, and secure route guards to block any unauthorized users from accessing the private admin files. Final testing was done by both the developers and real users to ensure everything synced properly before launching the system.

3. RESULTS AND DISCUSSION

The Booking Hub Room Management System was successfully built and tested at Samson's Transient. The final results proved that the system solved the major operational problems caused by the old manual Facebook messaging system. To make the booking experience smooth for guests, the mobile app allowed users to view available rooms, check prices, see amenities, pick their check-in dates, and send a reservation along with an online down-payment receipt **(as shown in Figure 1)** app workflow starts with a secure user

Figure 1



(a) (b)

(c) (d)

Figure 1. Mobile application interfaces showing *(a)* the real-time room availability browsing catalog for dynamically filtering active transient listings by room type or price point, *(b)* the reservation customization module allowing users to specify amenity preferences, select check-in schedules, and calculate stay du rations with real - time billing calculations , *(c)* the payment submission interface enabling users to upload digital receipts as proof of down-payment to secure their booking, and *(d)* the automated notificatio n feedback confirming reservation approval following administrator verification

To make sure people without Android phones could still book easily, the website provided the exact same room-browsing and reservation features on a desktop web browser **(the public customer web interface is displayed in Figure 2.)**

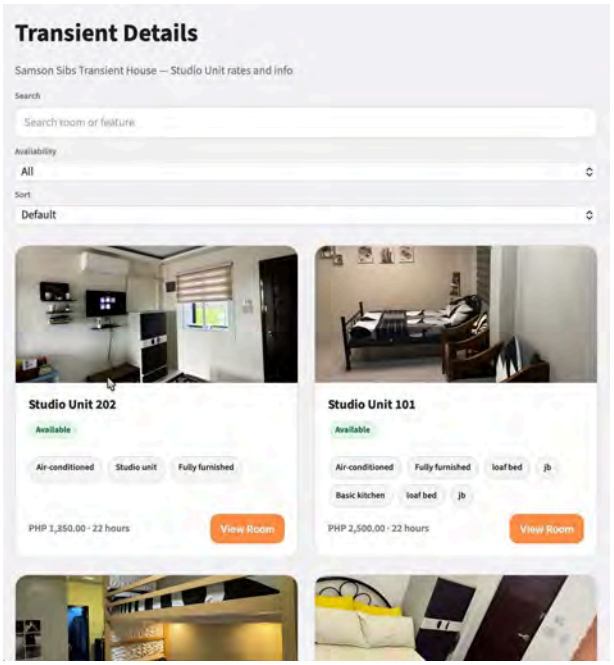
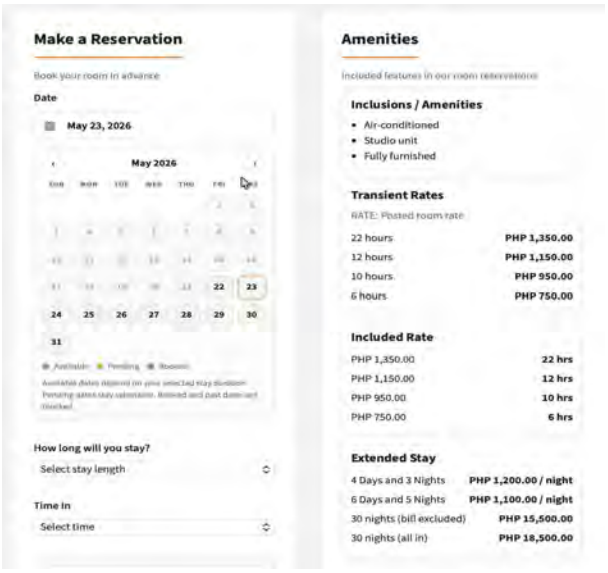
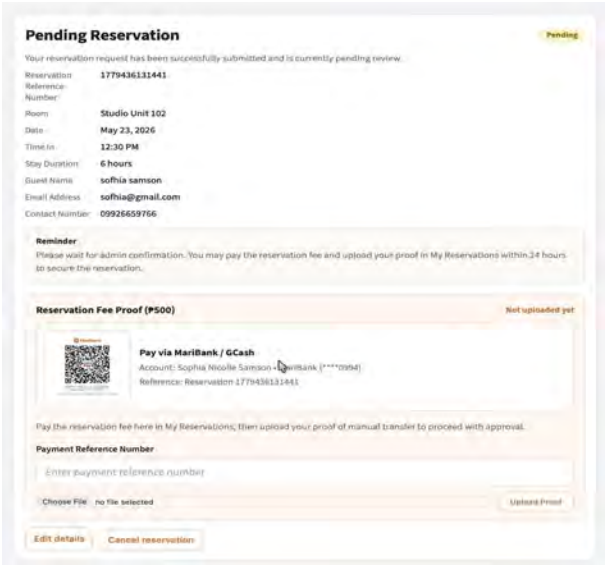


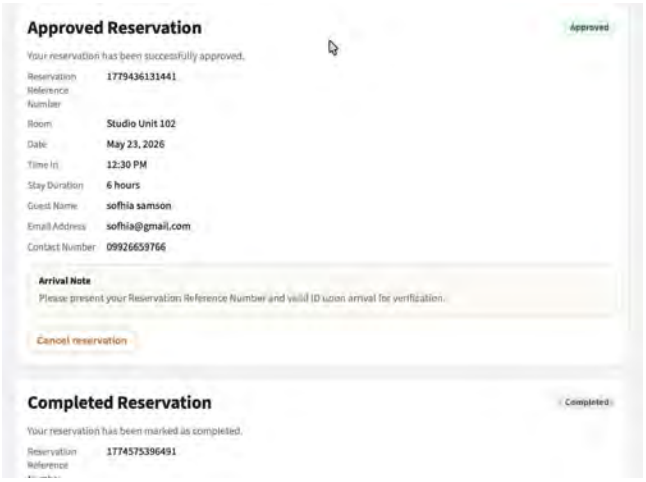
Figure 2



(a) (b)



(c)



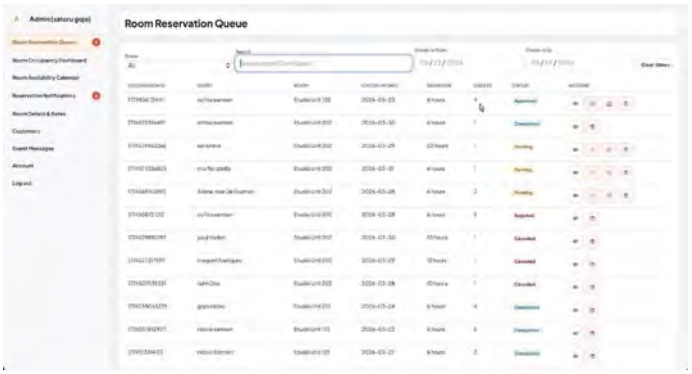
(d)

Because the mobile app and the website are linked to the same database, room availability updates instantly, completely eliminating double-bookings.

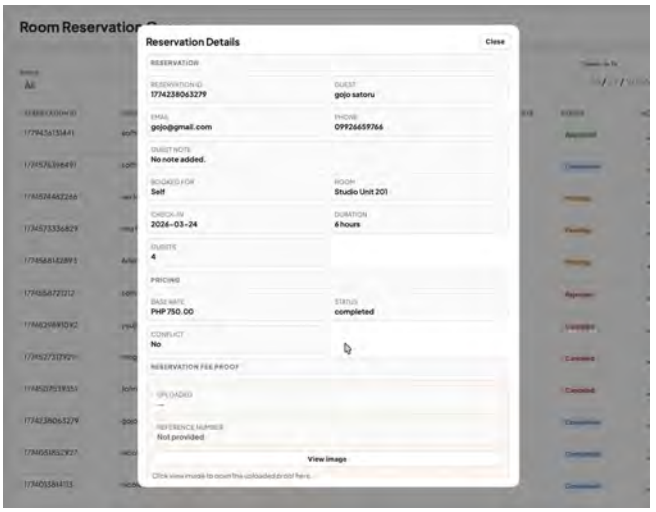
The data communication between these user apps and the main database was handled by a central API running on a localhost server environment, acting as a secure bridge for transferring data. When a guest submits a booking on their phone or computer, data payloads are sent straight to the localhost endpoints to keep the records perfectly synced. To protect guest privacy, the connection paths used secure digital token sand authorization checks to verify every data request before updating the database tables. This setup easily manages background tasks like generating automated booking receipts, tracking down- payment approvals, and refreshing the available room lists instantly, completely removing data delays across the system.

Once a customer finishes a booking, the backend office handles the data automatically. The web admin dashboard gave the staff and owner a single, central place to manage all active reservations, update room details, track guest check-ins and check-outs, and view automatic business reports **(the administrator layout is displayed in Figure 3)**.

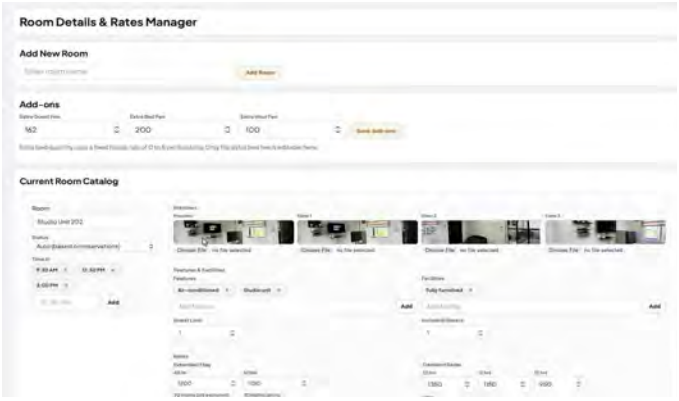
Figure 3



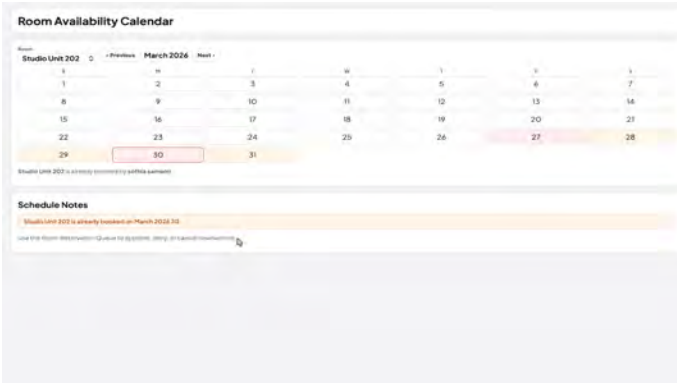
(a)



(b)



(c)



(d)

Figure 3, the administrative interface provides full lifecycle tracking of guest transactions and asset statuses. The workflow begins with the pending reservations ledger **(a)**, which captures incoming booking submissions and (b) lets administrators review uploaded guest documents before clicking "Approve" or “Reject." (c) is where the admin can edit room pictures, prices, included amenities, or even add more room. While (d) lets admin check for any booking and who booked that date by clicking the red dates.

Tasks that used to take hours to do by hand, like tracking down-payments and checking which rooms are clean or occupied, are now handled instantly by the software. Overall, the system greatly cut down manual labor times, stopped booking mistakes, and made the whole process stress-free for both guests and workers. The down-payment tracking feature also successfully reduced last-minute cancellations, which was a major financial issue for Samson's Transient in the past.

To evaluate how well the system performs in a real- world environment user acceptance testing was conducted with both the transient house staff and actual guests. The evaluation assessed five key performance categories: functional suitability, speed, layout usability, processing reliability, and security. Overall, the feedback was highly positive, with participants expressing strong satisfaction across all metrics. Specifically, users highlighted the system's rapid processing speeds, intuitive user interface layout, and dependable reservation handling as major improvements over manual operations.

4. CONCLUSION

The launch of the Booking Hub Room Management System offers an effective, easy-to-use technology solution to replace slow manual room scheduling. By moving away from unorganized chat messages and switching to a synced mobile and web app network, the platform completely removes room scheduling conflicts and tracks availability automatically. Real-world testing shows that the system simplifies daily tracking tasks for workers while making room selection much more convenient for remote guests. Future updates to the system should focus on linking third-party live payment applications and adding automatic push notifications to make the system even more stable and reliable.

Acknowledgements

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