Enhancing the All Sports Booking System: Addressing Inefficiencies and Proposed Improvements for User Satisfaction

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ABSTRACT

The utilization of digital systems to enhance business operations is a well-established strategy among enterprises today. Many businesses choose to adopt technology to remain competitive, however, it is important to note that not all system implementations will achieve complete success without encountering issues. This study examines challenges that the All Sports Booking System needs to address, which relate precisely to system inefficiencies, user dissatisfaction, and trust issues. The study identified some major issues: double booking, slow response time, and poorly designed user interface. The objective is to propose certain improvements in the system based on the user's feedback. Data collected using interviews and surveys. Findings revealed usability and reliability of the systems are the main problems that affected users' trust in using the system. Recommendations for future enhancement include real-time update issues, interface usability, and system security and transparency.

INTRODUCTION

These days, sport facilities management has moved their way towards digital solutions. This is a brave and a good move to stay relevant in the business world. The decision to digitize core operations is driven by several reasons including the desire to increase user satisfaction and improve the governance. Before the digitization was made, the previous way of handling operations often led to several problems such as overbooking, double booking and accessibility barriers. These challenges not only contributed to user dissatisfaction but also led to nonoptimal resource utilization.

The study takes place at All Sports, a sport facility provider that offers futsal courts and badminton courts. It was established in 2016 and has grown to multiple branches since. The expansion has urged All Sports to accommodate themselves with a web-based booking system. The poor planning and development have cost the organization dearly, leading to numerous operational challenges. Many complaints from the user are revolving around issues such as overbooking and double booking. This will affect the long-term revenue stream for All Sports seems there are numbers of competitors entering the market as of now. This situation underscores the need for a robust and user-friendly booking system for All Sports. There are three problem statements that have been extracted from the study:

i.   Overbooking and double booking: The existing booking system is unreliable because it leads to user dissatisfaction mainly due to overlapping booking.
ii. inefficiency and underutilization of facilities: Existing booking systems won't allow the user to get the real-time status of sports facilities, whether it has been booked or cancelled in the last minutes.
iii. User inconvenience: The existing booking system has made the user have to contact the staff on duty to double confirm the sports facilities availability, this has dropped the booking rate due to its hassle.

This study aims to address the inefficiencies and improve user experience towards an automated information system, the All Sport Booking Systems. The focus is to improve the interfaces by making it user-friendly, able to provide the real-time updates and streamlined operational processes, conclusively to elevate user satisfaction and facility management.

LITERATURE REVIEW

Challenges in online booking systems

The implementation of online booking systems has gone worldwide covering various service industries. This has benefited them in many ways especially in managing booking digitally. Nevertheless, regardless of the advantages digital booking systems provide, there are challenges that need to be acknowledged and overcome. Andre et al. (2024) has identified system reliability, data privacy concerns, and the inability to have real-time updates as an important area that needed to be focused on. Common complaints that users usually face include inability to get the correct information about bookings, overbooking, scheduling conflicts, and general lack of trust in the system.

Another major challenge is the inability of the booking systems to provide mechanisms for real-time updates, which affects the user experience. In many instances, users would want to cancel or even modify their reservations. Delays while updating such changes may lead to cases of double bookings and/or incorrect availability displays which could irritate both the facility managers and the users. Such ineffective systems not only distress the users, but they affect the operations of the service providers.

Importance of user-centered design in booking systems

Otherwise, user experience (UX) needs to be improved in the booking systems so the systems would gain the adoption rates and use continuously. The principles of Human-Computer Interaction (HCI), mainly User-Centered Design (UCD) is one of the trusted tools to be used in developing UX. According to Pushpakumar et al. (2023), including the user throughout the process will highly make the UX successful. The methods can be made by phases mainly from the users' feedback and tuning from there. UCD focuses on making the booking process easy to navigate, responsive to user command, this will be factors to the user satisfaction in using the system.

A study conducted by Guellab and Benkhelifa (2023) further highlights the challenge that contributes to the user dissatisfaction regarding not meeting the user-centric approach. As a result, users tend to feel

discontented. According to their inquiry into the improvement of parking reservation systems, they learned that letting real-time context-based filtering and feedback from users be involved can significantly enhance the user experience. Nevertheless, the less the presence of such mechanisms in existing booking systems of different sectors, the more inefficiency is created on occasions when customers fail to modify or personalize their bookings in real time.

Some important design strategies in creating an engaging booking experience include clear visual cues, straightforward navigation routes, and mechanisms for feedback. The closer the systems towards user preferences, the more likely the developer can learn about the pain points those users faced during their session using the systems. For example, a well-designed interface offering clear instructions such as "Confirm Booking' or "Cancel Reservation" and immediate feedback might reduce the cognitive load a user has to bear, making the process of booking smoother and more pleasant. Pushpakumar et al. (2023) add that features such as consistent layout, use of accessible language, and error prevention techniques will go a long way toward enhancing the efficacy of any booking platform.

Trust and user experience in online booking

The most fundamental element in using the system is trust. With trust, the likeliness of a user to use the information system is likely high. Andre et al. (2024) extends into the relationship between trust and user behavior using Technology Acceptance Model (TAM). The study makes full use of the factors and dependent variables in the theory perceived ease of use, perceived usefulness and user review and ratings. This study approved that trust indeed influences the likelihood of users utilizing the booking system. Furthermore, one of the most influential factor of the adoption is user review. Good reviews not only provide social proof but also make less severe concerns about the reliability and security of the booking process.

The findings highlighted the influence of building trust from transparency and user-centered connection strategies. For instance, booking systems that enable users to see real-time availability, see reviews with extended details and receive prompt confirmation can build a sense of security and reliability. The system that could secure user credentials and information are one of the most important factors contributing to user trust. Bear in mind that any perceived vulnerability will hinder the user from using the system. Andre et al. (2024) underscore that the transparent and secure booking system associated with good user feedback will significantly enhance user confidence and intention to use the platform.

The importance of trust in booking systems has been emphasized across industries. The study of Zaid and Abadi (2022) highlights that the quality of a booking system is based on trust and user engagement towards it. Users are likely to trust systems that have high-quality information characterized by system reliability and responsive services. It encourages user loyalty, especially in areas of travel booking where it is expected to receive real-time information and no-error transactions.

On that note, Kim et al. (2017) indicated that the user's trust in such booking sites is motivated by online reviews, this is the strong factor for the user whether to use it or not. Thus, users are quite reliant on the credibility of information provided, and any lack between displayed and actual service quality reduces trust. Trust impacts not only the intention to book but also the long-term relationship users develop with the platform. Ikhsan et al. (2022) have pointed out that reviews, as part of e-WoM (online word of mouth), guarantee significant enhancement of trust in the online booking system. Their study showed that reviews, whether positive or negative, help the user to get information about the reliability and service quality of the system, the information is giving them the reason to book. That is, positive reviews enhance user confidence, while negative reviews would keep the users away from using it.

Real-time information availability and security measures are just as important in developing trust. Real-time viewing of the availability, reading reviews with extended information, and receiving immediate confirmations will develop a feeling of security and dependability. In contrast, any perceived vulnerability, for example, a lack of secure transactions or a lack of updated availability information will affect trust. The findings of Kim et al. (2017) further emphasize that trust within the platform is an important factor for the user to use the system. In brief, trust is multi-dimensional in online booking systems, relying on user reviews, system transparency, and security. Findings then have consistently shown that with increased trust, the use, loyalty, and intention to use of the users also increase. For this reason, booking systems should take designing trust through users, transparency, and security as priorities in ensuring a long-term viability of the system.

Enhancing system usability and user engagement

System usability and user engagement are critical factors in the success of any online booking platform. According to Pushpakumar et al. (2023), applying HCI principles such as clear design, interactive elements, and responsive interfaces can significantly improve the user experience. The study highlights those interfaces designed with user engagement in mind, such as those that incorporate feedback loops and interactive features, are more likely to keep users satisfied and reduce the likelihood of errors during the booking process.

Another angle to look at is the various ways the systems provide the interaction to the user—touch, voice and gestures will also increase the adoption rate of the users because the flexibility of the system will entertain a broad range of users with various preferences respectively. Pushpakumar et al. (2023) and Edén et al. (2024) seconded this motion by stating that the systems that contain intuitive mode are likely to heighten the usability. Moreover, the intuitive principals included in the system will be the factor that retains the loyalty of users. By constantly getting feedback from the users, the developers will not only develop a good system but also be entertaining to use.

On the other hand, the study conducted by Wu and Law (2019) indicates that usability performance is a significant factor that influences user satisfaction, particularly towards mobile and web-based booking platforms. In the study, the author established that the usage pattern of m-bookers, users of mobile apps, is different from ebookers, who are web users. According to them, the mobile users prioritize the usability and efficiency of the site, despite the absence of comprehensive information. This implies that the design of user interfaces for different devices would serve the purpose of enhancing the degree of user engagement as well as functionality.

The study conducted by Monrroy (2024) found that problems related to accessibility remained a barrier in the use of internet booking systems particularly to the disabled user. They did a study on how to make the best medical appointment system for those who have use of their upper extremities impaired—limitations in the function of the upper limbs, which include the shoulders, arms, elbows, wrists, and hands— and it showed how regular online systems don't cater to all users. There is no voice interaction, and they have not streamlined making a reservation for the disabled user, so they are not very user friendly. This barrier brings up the larger point that a lot of reservation systems are not accessible which leaves some users unable to utilize services with ease.

In another related study, Ani et al. (2019) assessed usability using the System Usability Scale while testing online travel booking systems. The results showed that user experience, especially system efficiency and ease of use had a strong effect on purchase intention. Perceived quality and trust proved to be strongly connected to usability, giving support to the fact that improving the usability of the system enhances user experience and probably increases user activity and loyalty.

Case studies and best practices in booking systems

The advisable method before development or refurbishment of any information system is to investigate case studies. This is to adopt best practices in designing and implementing. Liu et al. (2022) has studied various sport facilities booking systems and has found several factors that contribute to their success. These characteristics include the incorporation of user feedback, real-time data updates, and ongoing system enhancements based on performance indicators. According to the study, a booking system that continuously absorbs and responds to user feedback is more likely to achieve high success, user satisfaction, and operational efficiency.

One of the significant cases that can be highlighted is, by implementing a user-friendly interface and real-time booking notification able to improve the booking process. The focusing is mainly on user UX by ensuring the system was both reliable and responsive, the result marked a significant booking numbers and user engagement. This has set the rule that how important it is to constantly evaluate the systems, utilizing existing technologies at hand and meet the expectations.

METHODOLOGY

Research design

This research was conducted by using a mixed-method approach in finding if there is a way to improve the existing booking system of All Sports. The approach used is quantitative and qualitative to ensure the insights were pure from the real-world experience from the users. The findings were gone through an empirical analysis as it is the main foundation for the system development The study mainly depends on three focus areas: data collection, system evaluation, design and implementation.

DATA COLLECTION

The data collection for this research is done by gathering insights from stakeholders using interviews and surveys for the system performance. This is crucial in understanding the current situation of the booking system, where to start, which areas to focus on and what can be done towards it.

Interviews with stakeholders

The interviews were conducted in a semi structured way. The interviews were done with the total of 15 stakeholders participation consisting of All Sport facility manager, booking staff, and frequent users. The interviews succeeded in opening the view of the booking system's current situation. The themes focused on the interview are: ease of booking, common technical issues, staff experiences with the system and lastly user satisfaction level and where are their main pain points and the area that frustrated them the most. The interview is done with open-ended questions, this is for the gathering of intelligence as much as possible sincerely from the user feedback on the existing booking system. The transcripts of the interviews were analyzed to extract the themes regarding operational difficulties faced by the staff and the users during the booking process.

User satisfaction survey

The survey has been distributed to 100 regular users of All Sports facility. This is done to extract the satisfaction rate from the users. A 5-point Likert scale was used for quantitative items, while for open-ended questions allowed the respondents providing free response and focusing on their area of concern. From the overview of the answers, it is confirmed that the users were dissatisfied, and the most popular issues raised were slow response times and the lack of real-time updates. This insight approved for the necessity of system improvement and system design.

Analyzing findings

The findings from the data collection phase were analyzed to find out what are the recurring themes and main issues of the current system. This analysis was proposed to be referred to when designing the system later. This is to ensure the development of the system will be focusing on addressing the pain points of the users.

i.   Thematic analysis of interviews: The data from the interviews were comprehended and analyzed thematically to find out what are the main issues of the current booking system. The themes persist on the system reliability issues and difficulties in managing cancellations and updates. These themes have guided for the proposed enhancements of the system focusing on improving system reliability.

ii. Quantitative analysis of survey data: The responses from the respondent were analyzed statistically to measure user satisfaction level and which areas needed an improvement. The descriptive statistics analysis was used to find out which areas lack in performance such as slow response times and worrying numbers of booking errors. The findings and analysis from this study provided a strong foundation on the proposed system enhancement emphasizing the need for real-time booking updates and a more user-friendly interface.

STUDY FINDINGS

The findings from the interview and survey of the All Sports booking system stakeholders has revealed multiple issues that need to be addressed. The issues persist on the operational efficiencies and user dissatisfaction.

Frequency of Booking

The survey on the user behavior in terms of frequency of using the booking system turned out that there are different levels of engagement with the booking system. As shown in Table 1: User Booking Frequency Patterns, 41.7% of respondents rarely use the booking system, 33.3% book weekly, and 25% of the respondents book monthly. This finding suggests that there is irregular usage, especially among casual users, which could be attributed to dissatisfaction with the current system's usability and reliability.

Table 1: User Booking Frequency Patterns.

Frequency of Booking	Respondents
Monthly	25%
Weekly	33.3%
Rarely	41.7%
Total	**100%**

Access Methods

The survey gathered demographic information about the users of the All Sport Booking System. Most of the respondents were frequent users of the All Sports facilities but with variance of usage frequency. As for the access methods, there are balance methods used by the users. According to Table 2: Access Method, 41.7% of users booking via phone call and 41.7% using the website, this indicates that reliance on the traditional method of booking is still a thing even though there is a digital booking system offered. Another

sign that the need for the enhancement of the booking system is there is that only 8.3% users used mobile apps or multiple methods for booking. This indicates a significant reliance on traditional methods, highlighting the necessity of providing user-friendly mobile applications for booking to gather more modern booking preferences.

Table 2: Preferred Booking Access Methods.

Access Method	Respondents
Phone Call	41.7%
Website	41.7%
Mobile App	8.3%
All the Above	8.3%
Total	**100%**

Key Issues Identified

This research has found several major problems mentioned by the users with the current booking system. Table 3: Key Issues Encountered in the Current Booking System, presents several key issues consisting of difficulty finding available slots (91.7%), system crashes or errors (58.3%), problems with payment processing (50%), and inaccurate booking confirmations (41.7%). The highest mentioned issue is difficulty finding available slots, highlighting a severe issue that disrupts booking experience.

Table 3: Key Issues Encountered in the Current Booking System

Issue	Respondent
Difficulty finding available slots	91.7%
System crashes or errors	58.3%
Problems with payment processing	50%
Booking cancellation without notice	33.3%
Inaccurate booking confirmations	41.7%
Difficulty logging into account	25%
Slow loading Time	41.7%
Total	**100%**

*This table underscores the operational inefficiencies and technical difficulties users face, impacting their ability to make bookings smoothly and reliably.

User Satisfaction and System Usability

Even though there are many issues regarding the system, there are areas that users find useful, and those areas fall into satisfactory levels among users. According to Table 4: User Satisfaction and System Usability Takeaways, while 91.7% of users cited finding available slots as a significant issue, 41.7% still found the system relatively easy to use. However, double booking and schedule conflicts remain problematic for 66.7% of users. This is the urgency for the need for system enhancement regarding the features of better notifications and real-time updates to reduce booking errors.

Table 4: User Satisfaction and System Usability Takeaways

Key Takeaways	Respondent
Majority issues	91.7%
Booking Frequency	33.3%
Customer support	41.7%
Navigation and usage	41.7%
Real-time availability	50%
Double booking	66.7%
Improvement needed	55.5%
Total	**100%**

* This table reflects the contrasting experiences of users, highlighting specific usability strengths and critical areas for improvement

Suggestions for System Improvements

Valuable feedback also gathered through the section on improving the system's usability and reliability. User suggestions captured in the Table 5: User Feedback and Suggested Improvements. Among key recommendations is the suggestion for a systematic booking process, a reminder feature, example, notification of 10 minutes before the court use, and adjustment for the system to be more user-friendly. These recommendations emphasize the need of the system improvement.

Table 5: User Feedback and Suggested Improvements.

Additional comments and suggestions.
Make a systematic system
Make a reminder notifications 10 minutes before the user use the court
Improve the system
Fix the system so that it came out more user friendly
Total

* This table highlights user-proposed enhancements that focus on reducing errors, improving communication, and making the system more responsive to user actions.

Qualitative Findings

Several key issues were identified from interviews conducted with users of the All Sport Booking System. These findings highlight common frustrations with the system's inability to manage real-time bookings efficiently, leading to significant user dissatisfaction.

i.   Double booking incidents: Miss Ilya reported an instance of double booking, where she had received confirmation for a court reservation only to find another group had reserved the same time. This issue appears to be recurrent, with other users also experiencing similar situations. The incident underscores a critical flaw in the system's ability to prevent overlapping bookings, which can result in operational inefficiencies and user frustration.

ii.   User communication and system confirmation: A lack of clear communication between the system and users was also highlighted. Miss Ilya expressed concern that although she received a confirmation email, the system failed to properly update availability, leading to booking conflicts.

This indicates a possible breakdown in the system's confirmation process or a delay in real-time updates. The user stated:

"I got an email confirming my booking, but when I reached the court, the other group produced a confirmation notification for the same time."

This issue reveals a gap in trust between users and the system, as users expect timely and accurate communication regarding their bookings

iii. Recurring issues noted by other users: Miss Ilya also mentioned that she overheard complaints from other users about double booking, indicating that this issue is not to be overlooked. Something has been done so that the organization's reputation would not be in worse condition.

iv. System support and temporary workarounds**:** The support staff acknowledged the problem and provided temporary solutions, advising users to check booking status several hours in advance to avoid double bookings. While this workaround addresses the immediate problem, it highlights the system's shortcomings in real-time synchronization. The weakness of the system that couldn't provide real-time information and reliable information really needs to be solved through planning and technical overhaul.

"It is best to check the schedule hours before their booking slot"

This is not supposed to happen, the system is for the convenience of the user, but it happened otherwise.

Summary of Findings

The findings in this study confirmed that All Sports face the issues of usability and operational efficiency that affect user satisfaction. The targeted improvement needed to be addressed based on the feedback by the user. Problems like booking errors, system crashes and the hassle in finding the available slots need to be solved. User responses are consistent in desiring a systematic, reliable and user-friendly booking system, this can be a clear roadmap for proposed system enhancements.

DISCUSSION

The findings from this study have revealed numbers of operational and usability issues within the All Sports Booking System. This secion will discuss and focus on the reasons for the problems identified and how these issues affect the user satisfaction and efficiency of the system. One of the main issues raised in both interviews and surveys from the users was the issue of double bookings, where two users successfully booked the same slot. This problem appears to arise from two main causes: inability of the system to sync operation and delays in system updates. The problem of the ability of the system to update the real-time information is heavily due to the lack of the proper backend infrastructure. When a user makes a booking, the system should be able to lock that slot instantly across all platforms to prevent other users from booking it. However, the current system lacks such synchronization capabilities, leading to overlapping bookings. This is particularly concerning because it directly impacts user trust on the system's reliability, as users expect the information displayed to be precise before they are making the decision.

The non notification and validation system also lead to the user dissatisfaction under the communication section. While booking confirmation does appear, if a double booking occurs, there's no warning on that matter. This disconnects points to a lack of end-to-end communication between the system's frontend (what users see) and backend (where data processing happens). The system may not be validating or updating user actions correctly in real-time, which leads to discrepancies between user confirmations and actual booking status. Such communication failures also suggest poor error-handling

mechanisms within the system if an overlap occurs, users should be notified of the conflict immediately, allowing them to modify their booking.

41.7% of users expressed dissatisfaction due to the system usability closely regarding the issue of poor navigation provided and poor ease of use of the system. One of the reasons for this could be the lack of user-centered design principles during system development. The interface is not intuitive and less user friendly, users will be stuck upon using the system, don't know where to navigate and unclear on what is the next step of any particular operation they're doing. The fact that 91.7% of users highlighted problems with slot availability further points to a flawed real-time update mechanism. This may result from slow response times or inadequate backend processing capabilities, leading to user frustration when slots that appear available are no longer accessible by the time they attempt to book them.

41.7% of the users agreed that rather than using the non user friendly system, they are better off with a traditional method of booking by phone call. This proof of the system is not user-friendly with only 8.3% of the users using mobile apps for booking. One explanation could be that users find that digital booking has given them so much trouble and they are prone back to the old method such as phone reservations. This emphasizes the need for the improvement of the booking system which addresses the issues like system crashes, slow loading times, and poor user interface design.

58.3% of the users agreed that the system is lacking in optimization and infrastructure. This could be due to the inability of the system to handle operations by the users particularly in the peak hours. The system scalability and stability is compromised and realized by the user once they encounter slow response time and system crash. The current system architecture may not have been designed to handle dynamic operation or user request, leading to operational inefficiencies when usage spikes.

A critical factor impacting user satisfaction and loyalty is trust in the system. Users who experience double bookings, system crashes, or slow performance are less likely to trust the system in the future. According to the survey, 55.5% of users believed the system needed significant improvement. Most of the users suggested All Sports to provide a systematic booking process. In addition, they wanted the notification to be provided. These suggestions highlight that users expect the system to have reliability, this also complimented the standard user-centered design principles. Implementing these improvements would likely improve user trust, improve system usability, and increase the user satisfaction.

As for the long-term sustainability of the All Sport Booking System, this study suggested that the findings do impact those. The longer-term negative impact that we expect to see is the loss of revenue due to the system issues. Additionally, the competitors around are doing their very best and this made the users have many options leading to the downfall of the All Sports business. Enhancing system performance, real-time synchronization, and user interface design will be crucial in ensuring the system meets user expectations and remains competitive in the marketplace.

CONCLUSION

In conclusion, this study has identified several key issues that truly affected the user satisfaction. It is revealed that several critical improvements need to be made. The findings indicate that issues such as difficulty in finding available slots, system crashes, and double bookings are prevalent among users. The advisable areas for enhancement - usability, reliability and real-time updates - would increase user satisfaction and solve the issues. The involvement of the company's stakeholders and owners in these efforts will be vital, as their support can drive the necessary changes. These enhancements are crucial not only for resolving existing issues but also for helping All Sports become a leader in the competitive sports facility industry.

GAP AND FUTURE DIRECTIONS

This research highlights critical areas for improvement in the All Sports Booking System, however, it also reveals several gaps for further investigation. One important gap is the limited exploration of users based on different demographics and levels. For instance, individuals with different education levels may interact with the system differently, potentially resulting in more useful or technical feedback. Future research can be conducted by segmenting users based on age and technology proficiency. Furthermore, future research should explore the potential for integrating advanced technologies, such as AI-driven solutions, to optimize the booking process and reduce errors. Investigating these innovations could benefit users by improving their online experience and to the company by providing analytical reports. Lastly, the perspectives of stakeholders, including staff and management, should be included in future studies. Their feedback could help develop a more complete strategy for improving the booking system, ultimately benefiting all users.

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