***GROUP 4***

**MENTOR**

*Dr. Le Hung Tien*

**CONCEPT OF OPERATION**

*The document describes the Concept of Soccer Field Booking System*

# **PROJECT MEMBERS**

PROJECT MEMBERS INVOLE AND ROLES

|  |  |  |
| --- | --- | --- |
| No | Name | Roles |
| 1 |  | Project Mentor |
| 2 |  | Project Manager |
| 3 |  | Software Engineer |
| 4 |  | Developer |
| 5 |  | Developer |
| 6 |  | Tester |

**Tables of Contents**

[PROJECT MEMBERS 1](#_Toc162601744)

[1. OVERVIEW STATEMENT 3](#_Toc162601745)

[Executive summary 3](#_Toc162601746)

[Current state 3](#_Toc162601747)

[Goal 4](#_Toc162601748)

[2. FUNCTIONAL REQUIREMENT ANALYSIS 5](#_Toc162601749)

[Indentifying core system feature 5](#_Toc162601750)

[Analyzing typical use case 5](#_Toc162601751)

[Determining roles and responsibilities of stakeholders 6](#_Toc162601752)

[3. OPERATION PROCESS 6](#_Toc162601753)

[Field booking 6](#_Toc162601754)

[Booking confirmation 8](#_Toc162601755)

[Pre-booking management 8](#_Toc162601756)

[Field search 9](#_Toc162601757)

[Booking schedule management for Admins 10](#_Toc162601758)

[Notifcation and confirmation 10](#_Toc162601759)

[Payment management 11](#_Toc162601760)

[4. CHANGE MANANAGEMENT 13](#_Toc162601761)

[Identification of changes 13](#_Toc162601762)

[Design and development 13](#_Toc162601763)

[Deployment and testing 13](#_Toc162601764)

[Monitoring and evaluation 14](#_Toc162601765)

[5. COMPATIBILITY, PERFORMANCE, AND LIMITATIONS 14](#_Toc162601766)

[Gross-platform compatibility 14](#_Toc162601767)

[Responsive design and performance optimization 15](#_Toc162601768)

[Supported standards and protocols 15](#_Toc162601769)

[Scalability and resource management 15](#_Toc162601770)

[Performance monitoring and optimization 15](#_Toc162601771)

[Addressing limitations 16](#_Toc162601772)

[Continuous improvement 16](#_Toc162601773)

[6. REFERENCE DOCUMENT 17](#_Toc162601774)

# **OVERVIEW STATEMENT**

## Executive summary

The Soccer Field Booking System aims to revolutionize the way soccer enthusiasts and teams secure field reservations. In a digital age where convenience and efficiency are paramount, The Soccer Booking System provides a seamless, user-friendly online platform for booking soccer fields. Catering to the needs of both casual players and professional teams, the system offers features such as real-time availability checks, secure online payment processing, and instant booking confirmations.

With a robust backend management system, field owners and administrators can easily manage bookings, schedules, and customer interactions, enhancing operational efficiency and customer satisfaction. The Soccer Field Booking System stands out in a competitive market with its emphasis on user experience, advanced features like field rating systems and account management, and commitment to security and data protection. The system is designed to scale, ensuring reliability and performance even as it grows to serve a wider audience.

## Current state

*Market demand*

The demand for online soccer field booking is increasing due to the popularity of football and other sports. Many people are busy and do not have time to go to the soccer field directly to book a field. They want to be able to search for soccer fields by location, price, field type, and available time quickly and conveniently. Online payment is also an essential requirement to ensure safety and convenience for users.

*Competition*

The online soccer field booking software market is highly competitive with many different providers. Popular software currently includes MyGo, Bóng Đá, Yeah1, Sân Bóng, Tìm Sân,... Providers compete on features, price, customer service, and user experience.

*Problems and challenges*

Many software still lacks features, the interface is not user-friendly, and online payment is not popular. Difficulties in managing soccer fields and booking schedules as well as attracting and retaining customers are major challenges for software providers.

*Development trends*

Online soccer field booking software is tending to develop new features such as a soccer field rating system, account management system, notification system,... Improving the user interface and enhancing user experience are key factors to attract customers. Integrating popular online payment methods and developing mobile applications are also inevitable trends in the market.

## Goal

To develop online soccer field booking software that the software will provide an automated solution for the booking and management of football fields, saving users time and effort. Through the software, users can easily search for available fields, select online schedules, and complete booking transactions conveniently from any internet-connected device. The system will also provide field managers with an easy-to-use management interface to track and manage booking schedules, helping them optimize resources and enhance flexibility in responding to user requests. meets market demand, provides convenient, fast and secure soccer field booking service, attracts and retains customers, and achieves profits for the business.

* Provide all the necessary features for online soccer field booking such as soccer field management, booking, payment, account management, notification system,...
* User-friendly interface, easy to use, helping users to easily search and book fields.
* Support popular online payment methods such as payment by credit card, e-wallet, bank transfer,...
* Develop a mobile application for users in the near future, helping them book fields anytime, anywhere.
* Provide the best customer service, support customers to answer questions and resolve complaints quickly.
* Achieve a certain market share in the online soccer field booking software market.

The Soccer Booking System's primary goal is to provide a best-in-class online booking experience that meets the evolving needs of soccer players and field owners alike. By focusing on ease of use, comprehensive features, and excellent customer service, The Soccer Booking System aims to become the preferred choice for soccer field bookings, ultimately expanding its reach and services to cater to a broader range of sports and activities. The online soccer field booking software market is developing strongly with a lot of potential. To be successful in this market, providers need to develop a system with full features, a friendly interface, good customer service, and an effective marketing strategy.

# **FUNCTIONAL REQUIREMENT ANALYSIS**

## Identifying core system feature

The online pitch booking system requires the following core features:

* *Pitch Management*
* Adding, editing, deleting, and searching for pitch information.
* Managing detailed pitch information such as name, address, images, prices, opening hours, pitch type (artificial turf, natural grass, mini-pitch), etc.
* Categorizing pitches by area, district, pitch type, and price.
* *Pitch Booking & Scheduling*
* Allowing customers to book pitches by time, date, and pitch type.
* Real-time availability checks to prevent double bookings
* Searching for pitches by area, district, type, price, and available time.
* Filtering pitches based on criteria such as price, type, available time, and user reviews.
* *Payment*
* Supporting popular online payment methods such as credit card payment, e-wallet, and bank transfer.
* Integrating with reputable online payment gateways.
* Sending payment success notifications to users.
* *User Account Management*
* Allowing customers to register, log in, and manage their personal information.
* Changing passwords and updating account information.
* Viewing booking and payment history.
* *Notification System*
* Sending notifications about booking schedules, schedule changes, and successful payments.
* Sending promotional and discount notifications to users

## Analyzing typical use case

Here are some typical use cases of the online pitch booking system:

* Customer Booking a Pitch
  + Searching for pitches by area, type, price, and available time.
  + A user searches for available fields by date, time, and preferred location, selects a field, completes the booking process, and receives a confirmation notification.
  + Booking a pitch and making an online payment.
  + Viewing booking and payment history.
* *System Administrator*
  + An admin or field owner logs into the dashboard, updates field information or availability, and reviews upcoming bookings.
  + Managing pitch information.
  + Managing booking schedules.
  + Viewing statistical reports.

## Determining roles and responsibilities of stakeholders

The online pitch booking system has the following main stakeholders with specific roles and responsibilities

* *Customer*
  + Responsible for providing accurate information when booking a pitch.
  + Responsible for making timely payments.
  + Responsible for complying with the regulations of the pitch.
* *System Administrator*
  + Responsible for managing system information.
  + Responsible for ensuring stable system operation.
  + Responsible for answering customer questions.

# OPERATION PROCESS

## Field booking

*1. User Initiation*

Users initiate the field booking process by accessing the booking section of the website.

They start by entering their location details, specifying the date and time they wish to book the field, and any specific amenities or requirements they desire, such as field size or lighting.

*2. Field Availability Check and Selection*

Users browse through the list of available fields and select their preferred option.

The system performs a real-time search based on the user's input criteria to check for available fields.

Users select a field, review detailed information, and choose a specific date and time for the booking.

They can view detailed information about each field, including photos, facilities, and pricing.

It retrieves a list of fields that match the user's requirements, displaying information such as location, available time slots, and amenities.

*3. Booking Details Confirmation*

Once a field is selected, users review the booking details to ensure accuracy.

They confirm the booking by proceeding to the next step, where they may be required to log in to their account or create a new one if they haven't already done so.

*4. User Authentication and Payment*

Users authenticate themselves by logging into their account or creating a new one if necessary.

They proceed to the payment section, where they select their preferred payment method and provide the necessary payment details.

The system securely processes the payment transaction and generates a booking confirmation.

*5. Confirmation and Communication*

After successful payment, users receive a booking confirmation via email or SMS, containing all relevant details about their booking.

The system also notifies the field manager or owner about the new booking, updating the field's availability schedule accordingly.

*6. Post-Booking Options*

Users have post-booking options, such as viewing their booking history, editing or canceling bookings if needed, and contacting customer support for assistance.

## Booking confirmation

*1. Authentication*

Upon completing the booking details, users may need to authenticate themselves by logging into their account or providing their contact information

*2. Review and Confirmation*

Users review the booking details, including field selection, date, time, and pricing, to ensure accuracy.

Once satisfied, they confirm the booking, which triggers the payment process.

*3. Payment Processing*

Users select their preferred payment method and provide the necessary payment details.

The system securely processes the payment transaction, encrypting sensitive information to ensure security.

*4. Booking Confirmation*

After successful payment processing, users receive a booking confirmation via email or SMS.

The confirmation contains all relevant details, including booking ID, field information, date, time, and payment receipt.

Admins can modify booking details, adjust field availability, and manage cancellations or rescheduling requests.

*5. User Account Update*

The system updates the user's account with the new booking information, allowing users to access their booking history and manage their bookings.

## Pre-booking management

*1. Accessing Account*

Users log into their account using their credentials or access their pre-booking management section through the website or mobile app.

*2. Viewing Bookings*

Upon accessing the pre-booking management section, users can view a list of their current and past bookings.

Each booking displays detailed information such as field name, date, time, and booking status.

*3. Editing Bookings*

Users have the option to edit certain aspects of their bookings, such as changing the date or time, upgrading amenities, or adding/removing participants.

*4. Cancelling Bookings*

If users need to cancel a booking, they can do so through the pre-booking management section.

The system may apply cancellation policies, such as refund eligibility and cancellation fees, based on predefined rules.

## Field search

*1. Search Criteria Input*

Users input their search criteria, including location, date, time, and desired amenities, into the search interface.

*2. Search Results Display*

The system retrieves and displays a list of football fields that match the user's search criteria.

Each search result includes detailed information about the field, such as location, amenities, availability, and pricing.

*3. Refining Search*

Users have the option to refine their search results further by applying filters or adjusting their search criteria.

This allows users to narrow down their options and find the most suitable field for their needs.

## Booking schedule management for Admins

*1. Accessing Admin Interface*

Admins log into their dashboard to get an overview of bookings, user activity, and field statuses.

Field managers or administrators log into the admin interface using their credentials.

*2. Viewing Booking Schedule*

Upon accessing the admin interface, field managers can view the current booking schedule for their football fields.

The schedule displays all upcoming bookings, including details such as field name, date, time, and booking status.

*3. Adding/Modifying Bookings*

Field managers can modify booking details, adjust field availability, and manage cancellations or rescheduling requests, add new bookings to the schedule or modify existing bookings as needed.

They may also update booking details, such as changing the date or time, updating participant information, or adding special notes.

## Notifcation and confirmation

*1. Notification Trigger*

Once a booking is confirmed by the user and payment is processed successfully, the system triggers notifications to relevant parties.

The system automatically sends booking confirmations, reminders, and cancellation notices to users.

*2. User Notification*

Users receive a booking confirmation notification via email or SMS, containing all relevant details based on their booking history and preferences.

The confirmation serves as a receipt and provides users with information about their upcoming booking.

*3. Manager Notification*

Field managers or administrators receive a notification about the new booking, alerting them to the updated booking schedule.

This ensures that field managers are aware of all incoming bookings and can prepare accordingly.

*4. Communication Channel*

The system establishes a communication channel between users and field managers, allowing for seamless interaction and coordination regarding bookings.

## Payment management

*1. Payment Gateway Integration*

The system integrates with one or more payment gateways to facilitate secure online transactions.

Users are presented with various payment options, including credit/debit cards, digital wallets, and other online payment methods.

*2. Secure Payment Processing*

When users proceed to make a payment for their booking, the system securely processes the transaction.

Payment information is encrypted to ensure confidentiality and prevent unauthorized access.

*3. Payment Verification*

Upon successful payment processing, the system verifies the payment to ensure that it has been completed correctly.

Users receive a payment confirmation, which serves as a receipt for their booking.

*4. Payment Handling for Field Managers*

Field managers or administrators have access to the payment management section within the admin interface.

They can view payment details for each booking, including transaction ID, amount paid, and payment status.

*5. Invoicing*

The system automatically generates invoices for each booking, detailing the booking amount, taxes (if applicable), and any additional charges.

Users and field managers can download or print invoices for their records.

*6. Payment History*

Users have access to their payment history, which displays a record of all transactions related to their bookings.

Field managers can also view the payment history for their football fields, allowing them to track revenue and financial performance.

*7. Refunds and Disputes*

In case of cancellations or disputes, the system handles refund requests in accordance with predefined policies.

Users can request refunds for cancellations within the specified time frame, and the system processes refunds accordingly.

*8. Financial Reporting*

The system generates financial reports that provide insights into revenue, transaction volume, and other financial metrics.

These reports help field managers and administrators monitor financial performance and make informed business decisions.

*9. Payment Security Compliance*

The system adheres to industry standards and compliance requirements for payment security, such as PCI DSS (Payment Card Industry Data Security Standard).

Regular security audits and updates are conducted to ensure the protection of payment information.

# CHANGE MANANAGEMENT

Change management is the process of ensuring that any proposed changes are identified, designed, implemented, and monitored in an organized and effective manner within our online football field booking system. Effective change management is vital to ensure the soccer field booking system remains responsive to user needs, technological advancements, and market dynamics. Our approach encompasses the following steps:

## Identification of changes

All proposed changes, including system enhancements, feature requests, or bug fixes, are systematically identified, documented, and logged into a centralized change management system.

Changes may originate from various sources such as user feedback, new requirements, or technical issues.

Impact Analysis and Prioritization

Each change undergoes a thorough impact analysis to assess its potential effects on system functionality, user experience, and resource allocation.

Changes are prioritized based on their urgency, potential benefits, and alignment with strategic objectives.

## Design and development

Prioritized changes are designed, taking into consideration system architecture and user experience.

Development follows best practices in coding, security, and testing to ensure high-quality outcomes.

## Deployment and testing

Changes are reviewed by a Change Advisory Board (CAB) comprising stakeholders from development, operations, and user groups.

The CAB approves changes for implementation based on their merit and alignment with project goals.

A deployment plan is developed to ensure that changes are implemented safely and without disruption to service.

## Monitoring and evaluation

Approved changes are scheduled for implementation during maintenance windows to minimize disruption.

Post-implementation, changes are monitored to assess their impact and effectiveness, with findings fed back into the change management process.

Feedback from users and the technical team is used to fine-tune and improve changes if necessary.

Change management is a critical part of maintaining and enhancing our online football field booking system, ensuring that it consistently meets user needs and maintains high performance.

# 5. COMPATIBILITY, PERFORMANCE, AND LIMITATIONS

Ensuring compatibility across various platforms and devices while optimizing performance and addressing system limitations is crucial for the success of our online football field booking system. Here's how we manage compatibility, performance, and limitations:

## Gross-platform compatibility

Our system is designed to be compatible with a diverse range of platforms, including web browsers (such as Chrome, Firefox, Safari), mobile operating systems (iOS, Android), and desktop operating systems (Windows, macOS, Linux).

Regular testing is conducted to ensure consistent user experiences across all supported platforms, with adaptive design strategies employed to accommodate different screen sizes and resolutions.

Users can seamlessly access the system from any device with internet connectivity, ensuring a consistent experience regardless of the platform.

## Responsive design and performance optimization

The user interface of our system employs responsive design principles to adapt seamlessly to various screen sizes and resolutions, enhancing usability across different devices.

Continuous optimization efforts focus on efficient resource utilization, including optimizing database queries, implementing caching strategies, and leveraging content delivery networks (CDNs) for faster content distribution.

Performance optimization techniques are implemented to ensure fast load times, smooth navigation, and efficient use of system resources, providing users with a responsive and snappy experience.

## Supported standards and protocols

Our system adheres to industry standards and protocols, such as HTML5, CSS3, JavaScript, and RESTful APIs, ensuring compatibility and interoperability with external systems and services.

By following established standards, we facilitate smooth integration with third-party platforms and enhance the overall user experience.

## Scalability and resource management

The system is designed to be scalable, capable of handling increased user traffic and data volume as the user base grows.

Scalability measures, including load balancing, horizontal scaling, and database optimization, are implemented to maintain optimal performance under varying workloads and usage patterns.

## Performance monitoring and optimization

Key performance metrics, such as response time, server uptime, and system reliability, are continuously monitored to identify areas for improvement.

Performance testing and optimization efforts are conducted regularly to enhance system efficiency and responsiveness, ensuring a smooth user experience even during peak usage periods.

Comprehensive monitoring tools track system performance, including server load, response times, and error rates, enabling proactive identification and resolution of potential issues.

## Addressing limitations

While designed to be robust and scalable, the system may have inherent limitations, such as maximum concurrent user capacity and data storage limits, such as concurrent user restrictions, data storage capacity, or processing capabilities, which are periodically reviewed and addressed through infrastructure enhancements and optimization.

We prioritize addressing these limitations through ongoing optimization efforts and continuous improvement initiatives to enhance system scalability, reliability, and performance over time.

## Continuous improvement

Feedback loops are established to gather user and stakeholder feedback, which is integral to continuous improvement efforts, driving enhancements in compatibility, performance, and user satisfaction.

By effectively managing compatibility, optimizing performance, and addressing system limitations, we strive to deliver a seamless and efficient user experience with our online football field booking system, ensuring satisfaction and usability for all users across diverse platforms and devices.

# 6. REFERENCE DOCUMENT

*Related Website:* <https://wesport.asia/services/sporters/>

*API Documentation:* <https://docs.stripe.com/api>

*User Guide:* <https://www.cisco.com/c/en/us/support/conferencing/webex-meeting-center/products-user-guide-list.html> (Example: Webex User Guide)

*Administrator Guide:* <https://support.google.com/a/?hl=en> (Example: G Suite Admin Guide)

*Data Protection Regulations:*

<https://gdpr.eu/> (EU General Data Protection Regulation (GDPR))

<https://www.hhs.gov/hipaa/index.html> (US Health Insurance Portability and Accountability Act (HIPAA))

*Security Standards:*

<https://www.iso.org/standard/27001> (ISO 27001 - Information Security Management)

<https://www.pcisecuritystandards.org/> (PCI DSS - Payment Card Industry Data Security Standard)