

## Table of Content

Content	Page Number
<b>1. Introduction</b>	4
1.1 Purpose	4
1.2 Problem Statement	4
1.3 Project Scope	4
1.4 Aims & Objectives	4
1.5 Product Perspective	5
1.6 Benefits of Virtual Booking Services	6
1.7 Users and Characteristics	6
<b>2. Stakeholder Identification</b>	8
<b>3. User Identification</b>	11
<b>4. Requirement Collection Strategies</b>	12
<b>5. Collected Requirements Overview</b>	13
<b>6. Feasibility Study</b>	14
6.1 Technical Feasibility	14
6.2 Operational Feasibility	15
6.3 Economic Feasibility	15
6.4 Legal and Regulatory Feasibility	16
6.6 Market Feasibility	16
<b>7. Specific Requirements</b>	17
7.1 External Interface Requirements	17
7.2 Functional Requirements	17
7.3 Non-functional Requirements	18
<b>8. Use Case Diagram</b>	19
<b>9. Individual Requirement Specification/Details</b>	20
<b>10. System Requirements</b>	22
10.1 Software Requirements	22
10.2 Hardware Requirements	22
<b>11. Conclusion</b>	22

## 7. Requirement Analysis

Requirement ID	Requirement	Explanation
<b>7.1 External Interface Requirements</b>		
Header Navigation	Clear, intuitive, and responsive navigation for easy access to sections like Service Categories, Search, etc.	Keeps the platform easy to navigate for all users.
Service Categories	Dropdown or filterable list for selecting different types of accommodations or services.	Helps users quickly find specific property types, enhancing user experience.
Search Interface	Robust search bar with filtering for location, price, ratings, and availability.	Provides quick and relevant search results, improving engagement.
Virtual Tour Interface	Interactive 360-degree virtual tours of properties.	Allows seamless virtual exploration across devices.
Booking Interface	Simple booking interface with date selection, room options, and reservation completion.	Guides users with real-time availability, secure payment options, and clear steps.
Admin Dashboard	Comprehensive dashboard for property managers to manage listings, bookings, and reviews.	Facilitates easy management of properties, user feedback, and booking approvals.
<b>7.2 Functional Requirements</b>		
User Management	Enable users to create, manage, and update accounts.	Allows profile management, booking history, and property listings for property managers.
Property Management	Property managers can upload and update property details, VR content, photos, etc.	Supports streamlined listing, pricing, and booking management.
Virtual Tour System	Provides 360-degree interactive virtual property tours.	Ensures immersive property viewing on all devices.
Booking System	Real-time booking capability.	Allows checking availability, booking, and handling cancellations or modifications.
Payment Processing	Secure payment processing with multiple payment options (e.g., credit card, PayPal).	Protects sensitive payment data with encryption and manages refunds and records.
Review System	Enables users to leave reviews and ratings for properties.	Supports trust-building through feedback, and property managers can respond to reviews.

Search System	Search with filters for price, rating, location, and availability.	Updates dynamically based on selected filters, with sorting options.
Help System	Access to FAQs, help center, and live chat.	Provides self-help resources and live support for complex queries or issues.

Requirement ID	Requirement	Explanation
<b>7.3 Non-functional Requirements</b>		
Performance	Platform should load quickly, with efficient VR content delivery, even on mobile devices.	High performance under traffic spikes; VR content should load promptly using CDNs, lazy loading, and caching across devices.
Security	Use strong encryption protocols to protect sensitive data (user info, payments).	SSL/TLS for data in transit, encryption at rest, MFA, and industry-standard payment security (PCI-DSS compliance).
Reliability	Ensure minimal downtime with strong fault tolerance mechanisms.	Redundancy, failover systems, regular backups, and monitoring to ensure availability during server outages.
Scalability	Platform must handle growth in users and properties without performance decline.	Architecture should support horizontal scaling; cloud infrastructure enables dynamic scaling with user and property growth.
Usability	Platform should be intuitive and user-friendly for non-technical users.	Clear navigation, tutorials, and prompts enhance accessibility for all users, from travelers to property managers.
Maintainability	Platform should be modular and easy to maintain with clear documentation.	Modular codebase facilitates easy updates, bug fixes, and future enhancements; detailed documentation supports developer efficiency.

## 8. Use case Diagram:

Use Case	Actor	Description	Preconditions	Postconditions
Signup	Customer	Allows a new user to create an account on the platform.	The user is not logged in and does not already have an account.	A new user account is created.
Login	Customer, Admin, Property Manager	Authenticates a user based on their credentials.	The user has a registered account.	User is granted access to respective functionalities.
Search	Customer	Enables the user to search for properties based on criteria like location, price, and availability.	None	A list of matching properties is displayed.
View Properties	Customer	Allows the user to view detailed information about a property.	The user has performed a search or selected a property.	Detailed property information is displayed.
Make Booking	Customer	Allows a user to book a property for specified dates.	The user is logged in and has selected a property.	A booking is created, and confirmation is sent.
Cancel Booking	Customer	Allows a user to cancel an existing booking.	The user has an active booking.	The booking is canceled, and any fees are processed.
View Bookings	Customer	Allows the user to view their booking history and details.	The user has completed bookings or reservations.	List of past and current bookings is displayed.
Review	Customer	Allows the user to leave a review for a property they booked.	The user has completed a stay at the property.	A review is added to the property listing.
Make Payment	Customer	Allows a user to complete the payment for a booking.	The user has initiated a booking.	Payment is processed, booking is confirmed.
Contact Support	Customer	Provides the user with access to support for issues or questions.	The user is logged in.	A support interaction is initiated.
Manage User	Admin	Allows the admin to manage user accounts, including updating or	None	User account changes are saved.

		deactivating accounts.		
Manage Property	Admin, Property Manager	Allows the addition, update, or removal of property listings.	The actor is logged in.	Property listings are updated.
View Reports	Admin	Allows the admin to view various platform performance and usage reports.	None	The admin views reports.
Manage Booking	Admin	Enables the admin to manage all user bookings.	None	Bookings are updated as per changes.
Manage Reviews	Admin	Allows the admin to monitor and respond to reviews or remove inappropriate ones.	None	Reviews are updated or removed as needed.
Send Notification	Admin	Allows the admin to send notifications to users.	None	Notifications are delivered to users.
Manage Support	Admin	Allows the admin to oversee support interactions.	None	Support tickets or queries are managed.
Add Property	Property Manager	Enables the property manager to add a new property listing.	The property manager is logged in.	A new property listing is created.
Remove Property	Property Manager	Allows the property manager to delete an existing property.	The property manager has existing listings.	The property is removed from listings.
Set Pricing	Property Manager	Allows the property manager to set or update property pricing.	The property manager has listed properties.	Pricing information is updated.
Set Availability	Property Manager	Allows the property manager to set availability dates for properties.	The property manager has listed properties.	Availability dates are updated.
Accept/Reject Booking	Property Manager	Allows the property manager to approve or decline a booking request.	The property manager has received a booking request.	Booking status is updated as accepted or rejected.
View Reviews	Property Manager	Allows the property manager to view reviews left by customers on their properties.	The property manager has properties with reviews.	Reviews are displayed for viewing.

Log Out	Customer, Admin, Property Manager	Allows users to safely log out of the platform.	The user is logged in.	User is logged out, and session data is cleared.
---------	-----------------------------------	---	------------------------	--

## 10. System Requirements

### 10.1 Software Requirements

- Frontend: HTML, CSS, JavaScript, React.js.
- Backend: Node.js, Express.js for handling server requests.
- Database: MySQL to store user data, bookings, and property information.
- VR Integration: A-Frame/Three.js for rendering immersive 3D property tours.

### 10.2 Hardware Requirements

- Cloud hosting for scaling the platform.
- VR headsets for testing and developing immersive content.
- High-performance servers to handle simultaneous user traffic and property data uploads.

## 11. Conclusion

The Virtual Booking Hub revolutionizes the concept of booking accommodation by seamlessly incorporating virtual reality (VR) and real-time booking services. It assures clients with interactive virtual showing of properties in which they are interested in enhancing the online booking experience thus reducing cancellations. Property managers get better listing management and/or marketing opportunities enabling customer interaction and accommodation visualization.

The Virtual Booking Hub intends to become the go-to platform for modern travelers and landlords hence changing the way bookings are done. Getting down to business, the following steps involve carrying out a thorough design, development, and testing of the platform in addition to integrating feedback with development for it to fit the users and robustly perform within the market