

# System Study

## Project Title

IntelliStay Management System (IMS)

## Purpose

Revolutionize hotel management by incorporating advanced technologies to streamline operations, enhance guest experience, and optimize administrative and staff functionalities.

## Objectives

### 1. Enhanced Guest Experience:

- Provide seamless hotel reservations with real-time updates.
- Implement AI-driven personalization for activities, dining, and itineraries.
- Enable contactless check-ins/outs via QR codes.

### 2. Efficient Staff Operations:

- Real-time task management and performance tracking for housekeeping and restaurant workflows.
- AI-driven training modules for better guest service.

### 3. Comprehensive Administration:

- Centralized multi-hotel management via a unified dashboard.
- Predictive analytics for occupancy trends, inventory forecasts, and dynamic pricing.

### 4. Security and Transparency:

- Blockchain integration for secure transactions and procurement.
- Real-time communication for instant updates and notifications.

## Scope

### 1. Guest-Focused Features:

- Contactless check-in/check-out and QR code generation.
- Loyalty program integration and virtual concierge services.

- Google Maps API for location-based suggestions.

## 2. Admin Module:

- Role and permission management for efficient operations.
- Advanced analytics for dynamic pricing and reporting.
- Restaurant module for reservations and staff scheduling.

## 3. Staff Module:

- Automated housekeeping task assignments based on check-out dates.
- Real-time task alerts and reminders.
- Performance tracking and analytics.

## 4. Technological Advancements:

- AI & ML for guest personalization and dynamic pricing.
- Blockchain for secure and transparent financial transactions.
- Real-time communication using Socket.io and Firebase.

## **Existing System Overview**

### 1. Traditional Hotel Management:

- Manual reservations, limited guest personalization, and inefficiencies in staff operations.

### 2. Current Online Platforms:

- Focus on basic booking functionalities without comprehensive guest, staff, and admin modules.
- Lack of real-time communication, AI-driven features, and secure financial handling.

## **Need for the New System**

### 1. Enhanced Guest Satisfaction:

- Deliver tailored experiences using AI-driven personalization.
- Provide convenience with seamless reservation and check-in processes.

### 2. Optimized Operations:

- Use predictive analytics for better resource management and forecasting.
- Automate routine tasks for staff, reducing manual errors and enhancing efficiency.

### 3. Modern Technological Integration:

- Blockchain for transparency and security in transactions.
- AI for dynamic pricing, occupancy trends, and resource optimization.

## **Modules**

### 1. User Management:

- Secure authentication and profile management.
- Personalized interactions based on guest preferences.

### 2. Reservation Management:

- Real-time room availability and booking with AI-based recommendations.
- Centralized dashboard for multi-hotel management.

### 3. Payment System:

- Integration with Razorpay and support for secure payments.
- Blockchain-backed transparency in financial transactions.

### 4. Task Automation:

- Automatic housekeeping job assignment and staff notifications.
- Role-specific task tracking for efficient operations.

### 5. Feedback and Review System:

- Guest reviews for continuous improvement.
- Performance analytics for staff and hotel services.

## **Conclusion**

The IntelliStay Management System addresses the gaps in traditional and online hotel management platforms by introducing cutting-edge technology, automation, and guest-centric features. It is designed to enhance operational efficiency, security, and personalization, making it a comprehensive solution for the modern hospitality industry.