AMAL JYOTHI
COLLEGE OF ENGINEERING
(A U T O N O M O U S)

INTELLISTAY MANAGEMENT

23MCA246 - Main Project

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AJC23MCA-2055
RMCA2023-25 S4
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**DEPARTMENT OF
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ABSTRACT

The IntelliStay Management System (IMS) is a next-generation hotel management solution designed to streamline hotel operations, enhance guest experiences, and optimize administrative and staff workflows. Built using the MERN stack (MongoDB, Express.js, React, Node.js), IMS integrates AI, Machine Learning (ML), Augmented Reality (AR), and advanced automation technologies to address modern hospitality challenges.

Key Features

Guest-Focused Features

1. **Restaurant Management Integration**

   o Seamless food ordering with real-time order tracking and notifications.

   o AI-powered digital menus with personalized meal recommendations.

   o AR-based food menu for an immersive dining experience.

2. **Nearest Tourist Location Integration**

   o Google Maps API integration to suggest nearby attractions, dining options, and virtual tours.

3. **AI-Driven Personalization**

   o Virtual concierge offering tailored recommendations for activities, dining, and travel itineraries.

4. **Contactless Check-In/Check-Out**

   o QR code-based self-check-in and check-out, ensuring security and convenience.

   o Face API authentication for fast and secure guest verification.

Admin Module Enhancements

1. **Advanced Restaurant Management**

   o Table reservations, menu customization, and staff workflow automation.

   o AI-driven performance analytics for peak-hour management and inventory optimization.

2. **Predictive Analytics**

   o Dynamic pricing models and occupancy forecasts using AI-driven insights.

3. **Customizable Role Management**

   o Advanced permission-based access for different administrative roles.

Staff Module Enhancements

1. **Real-Time Task Management**

   o Automated housekeeping task assignments with AI-powered scheduling.

   o Live updates on restaurant order status for improved service efficiency.

2. **Task Alerts and Notifications**

   o Instant alerts for room readiness, pending tasks, and restaurant orders.

Technological Advancements

1. **AI & ML Integration**

2. Task automation, predictive analytics, dynamic pricing, Food Item Recognition Using Image Processing and guest personalization to enhance operational efficiency.

3. **Augmented Reality (AR) Technology**

   o AR-powered food menus for interactive meal visualization.

   o Future implementation of AR-based hotel navigation for enhanced guest experience.

4. **Google Maps API**

   o Location-based recommendations for nearby attractions and custom travel itineraries.

5. **OCR-Based Document Verification**

   o Automated identity verification for secure and paperless check-ins.

6. **Face API for Secure Authentication**

   o Biometric login to streamline authentication and enhance security.

7. **AI-Powered Chatbot & Virtual Assistant**

   o 24/7 guest assistance for inquiries, concierge requests, and room service.

By integrating restaurant management, real-time notifications, AI-powered automation, and AR-enhanced guest experiences, IMS provides a comprehensive, future-ready hotel management platform. This scalable and intelligent system optimizes hospitality operations while ensuring a seamless and enriched guest experience in the evolving hospitality landscape.