



AI Event Management System

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Abstract: Artificial intelligence is changing the approach towards event planning, management, and organization. In conventional event management, scheduling of events, booking of venues, customer interaction, and other factors are done manually, making them cumbersome tasks. For overcoming the drawbacks of manual approaches, an AI-based event management system is designed. With the help of this system, a user is able to plan and book various events such as wedding events, birthday parties, corporate events, cultural events, and others on a web portal. The user can choose event categories, themes, packages, and services according to his/her need. The AI system is used for scheduling, booking management, and customer interaction. An AI-powered chatbot application is implemented in this system that will help users to get assistance about event packages, price list, booking process, and other queries related to customers. Administrators of the application can easily manage bookings, upcoming events, and completed events. The admin panel will also enable administrators to monitor revenue generation and customer reviews of events. The system is built using HTML, CSS, JavaScript, React.js, Python, and SQLite programming languages.

KEY WORDS: Artificial Intelligence, Event Management System, Event Scheduling, Booking Management, AI Chatbot, Web Application, Customer Assistance, Event Planning, SQLite, Python.



1. Introduction

The recent advancement in artificial intelligence (AI) technologies and web applications has changed how companies operate their events. The processes of planning, scheduling, allocation, and coordinating resources and customers together with making bookings take quite an amount of efforts especially while executing these actions manually. Traditionally, the process of managing the event includes such actions as spreadsheets management, making calls, using manual records which result in scheduling problems, communication delays, etc. Modern technologies allow developing software applications for automating the above-mentioned processes. These applications are used as event management systems that are focused on centralization of planning and booking of the events. However, most of the current solutions are based on the execution of simple booking processes without

incorporating any intelligent functionality. This paper will describe the development of the AI-based Event Management System. The solution will be implemented as a web platform that will offer automated management of different types of events such as weddings, birthday parties, corporate events, social events, etc. The solution will include selection of theme, package, or other additional service as well as AI ChatBot that will provide the answer to users' questions. The system will also be equipped with a dashboard that will be used for tracking booking details, dealing with customer reviews, scheduling of future events, and analyzing the income statistics. Combining intelligent automation and web technology can make a difference in ensuring efficiency and effectiveness, improving the level of satisfaction for customers and providing a scalable solution that meets modern event management demands. Rising needs for personalization in the field have led to the demand for intelligent event management systems. The clients demand a fast response, customizations, clarity about pricing policies, and effective interaction with the clients during the entire process. It is difficult to address their demands using traditional event management approaches, thus leading to low customer satisfaction levels. This calls for intelligent event management solutions.

2. Literature Review

According to Kumar and Ratten (2025), the increasing Kumar & Ratten (2025) elaborated on the increasing

importance of Artificial Intelligence in event management and described ways in which AI technologies can be used in improving event planning, scheduling, interaction with participants, and process optimization. The study covered the use of various types of AI tools like chatbots, analytical techniques, automation solutions, and intelligent decision making techniques for simplifying event management procedures. The researchers will emphasized that AI technologies can help in enhancing customer experience and reducing the need for manual work in today's event organizations.

Keiper (2023) explored the application of different AI tools for event planning and event management. It was found that the use of AI technologies can increase productivity and facilitate event planning and organization. The study demonstrated the usefulness of intelligent conversational technologies in supporting users in their activities connected with events and saving time in organizing the event process. Sulaiman (2022) explored the use of chatbot systems based on AI for customer service and described ways in which AI chatbot technologies are used to enhance communication between users and businesses. The importance of NLP and machine learning techniques in providing immediate answers to customer questions was stressed. Nosratabadi et al. (2022) reviewed the increased use of artificial intelligence models in management systems and identified AI's impact on enhancing automation and performance of operations and decision-making. The paper pointed out that artificial intelligence technology would help to decrease the labor intensity associated with management tasks, facilitate better handling of data, and promote intelligent operation. The researchers found that artificial intelligence solutions were more efficient and scalable than conventional management practices. On the other hand, Chaskopoulos et al. (2022) examined the use of chatbots within digital platforms and identified benefits associated with the introduction of conversational artificial intelligence into web-based applications. In their research, the researchers noted that chatbot solutions allowed for easier access to data, enhanced automated provision of information, and promoted interactive communication. Latest research works concerning AI-driven event management systems suggest that intelligent automation, booking systems, scheduling, and customer support are vital elements that should be considered. It was proved that AI technologies integrated into contemporary web-based



software can optimize event planning and management, simplify processes, and create better user experience. Taking into account the results of this research, the suggested AI event management system will incorporate event booking, scheduling, AI chatbot, customer support, and administrative monitoring in one intelligent system.

3. Problem Statement

Today, event management has gained importance to arrange weddings, birthday parties, corporate events, cultural events, and social gatherings. Yet, most of the event managers still depend on traditional methods like making phone calls, maintaining spreadsheets, and keeping notes manually to arrange booking and scheduling of events. Such manual processes consume lot of time and also cause problems related to miscommunication, scheduling, and management issues. Customers usually find it difficult to select event packages and themes. Customers do not have sufficient information regarding cost and timing of events which is available only with event managers. Management of multiple events at the same time is yet another problem that event organizers face. Manual record keeping of bookings, needs of the customers, event schedules, payments, and feedback leads to unnecessary increase in the workload along with the risk of making mistakes. The larger the number of customers, the harder it becomes to keep records and manage events successfully. Modern event management systems concentrate only on the core functionality related to booking of events. Most systems fail to offer the intelligent and automated services such as an AI chatbot for dealing with customer requests or real-time alerts. In other words, most of the available solutions fail to make the life of an administrator easier as the latter still needs to handle a lot of routine tasks. Consequently, a smarter approach that will simplify all those activities associated with event booking, customer communication, and administration is needed. An AI Event Management System can become just the right solution that will help to make the process of event management easier and more efficient.

4. Existing System

The current event management systems rely mostly on manual planning processes and the use of rudimentary technologies when it comes to performing all the tasks that pertain to events. Typically, the organizers rely on

phone calls, email correspondence, spreadsheets, and hard copy data in order to manage booking, scheduling, and the details of each individual customer. Traditional event management solutions offer little besides providing for such functions as event registration and scheduling. They lack any automation processes and cannot perform any automated operations related to organizing customer requests, event organization, and booking process. The customer-service interactions are generally slow and ineffective in the current event management solutions. The clients have to wait for relevant information about event packages, price details, availability, and booking confirmation. It is quite hard to manage all the events at once because there are no central administration facilities. Manually keeping track of the schedule of the events, customer demands, payment information, and even review information makes it difficult to keep everything error-free and without any schedule overlap. Though currently available methods make it easier to organize the events to a certain degree, still they lack in providing the intelligent support to the customers, notification features, centralized administration, and advanced analytics.

5. Proposed System

The proposed system aims to mitigate the problems that exist in conventional event management by providing a central system for event management and booking management. Such a central system will simplify the whole process of organizing events through the use of advanced automation and web-based systems. There is provision for selecting different types of events, themes, packages, and other services depending on what users want. The platform allows users to book the events quickly and effectively while obtaining all the necessary information related to such events and prices for the same. The AI chatbot feature incorporated in the system allows for providing immediate customer support by answering questions from customers about the available event packages, prices for the packages, booking processes, and other events-related issues without manual involvement by the administrator. The system has an administrative panel where administrators can monitor all the booking processes, manage bookings for different events, view income reports, customer reviews, and any other activity related to the events within the website. Through the use of intelligent automation, customer support, management capabilities, and analysis, the proposed system becomes



efficient, minimizes the amount of work, ensures customer satisfaction, and meets current demands.

6. System architecture

The AI Event Management System is made up of parts that work together to make event planning, booking and customer assistance better. These parts make sure that users, application services AI functionalities and database components can talk to each other smoothly.

A. Presentation Layer: The Presentation Layer is what the user sees. Customers use this layer to look at event types pick themes choose packages customize add-ons make bookings and talk to the AI chatbot. We made the interface easy to use work well and be accessible on computers and mobile devices.

B. Application Layer: The Application Layer is the core of the system. It takes care of event selection, theme management, package processing, add-on services, booking operations, customer information and booking confirmations. This layer gets user requests. Makes sure everything works well between the frontend, AI services and database.

C. AI Processing Layer: The AI Processing Layer has an AI chatbot that helps customers. It looks at what customers ask. Gives them relevant answers about event planning, prices, packages, themes and booking information. The AI part makes customers happy. Gives them help right away when they book.

D. Database Layer : The Database Layer stores all the systems data. It keeps records of users, events, themes, packages, add-on services, bookings, chatbot conversations and customer information. This layer makes sure data is stored, gotten, updated and managed well. That it is safe and sound.

E. Booking and Management Layer: The Booking and Management Layer takes care of the whole event booking process. It manages when events happen, customer details, booking confirmations, cost calculations and service selections. This layer makes sure all event planning activities are organized and done right.

F. Analytics and Reporting Layer: The Analytics and Reporting Layer makes reports about bookings money made, what customers like and event trends. These

reports help people, in charge see how the system is doing understand how the business is growing and make decisions. The reports also help make the system work better and make customers happy. The AI Event Management System uses these reports to improve the AI Event Management System and help the AI Event Management System work better.

7. Methodology

The following is how the AI Event Management System will be structured in terms of methodology to enable easy event management and interaction with customers. This method involves different stages such as user registration, event selection, booking management, AI services, database management, and administrative management. All these components are interrelated. Methodology is intended to enable seamless coordination between customers and event planners and minimize human input. All stages in the methodology help improve the management of events, bookings, customer satisfaction, and efficiency in the process. The inclusion of AI elements facilitates improved interactivity and decision-making among other factors.

User Registration and Event Type Selection: Users who would like to utilize the event management system must first access the portal and select an event category according to their preferences. There are different types of events for which the users can opt.

Selection of Themes and Packages: The next step after selecting an event category involves choosing different themes and packages associated with the selected event type. Various themes and packages for each category are displayed, indicating their prices and services.

Add-On Customization and Booking: It provides customers the facility to customize the event based on their choice of add-ons like photography services, catering services, decoration services, music, transportation, and entertainment. After the user chooses a package and the add-on facilities, it calculates the total estimated cost for the chosen package automatically. After that, booking details are entered.

AI Chatbot Support: AI chatbots have been installed in the system to facilitate users in getting assistance for their questions instantly. AI chatbots answer customer questions related to event packages, costs, schedules, booking details, and other offered services.



Database Management System: All the data related to bookings, customers, schedules, reviews, and other administrative details will be stored in the database. This database handling of data essential for the operation of the system.

Administrator Monitoring and Analysis: Administrators have access to a central control panel that helps them monitor all the processes concerning bookings, handle future and completed events, see customer reviews, and check revenue data statistics. Thus, all the processes relating to event management can be monitored from one place.

Notification and Reviews: This solution has the opportunity to notify customers about booking process results, schedules, and other necessary details. Moreover, the client has an opportunity to leave their reviews after the completion of the event.

The Last Stage in the Management of Event: Following a successful booking and confirmation stage, the events will be recorded and constantly monitored until they are completed. In this regard, the methodology proposed above offers a smart and efficient means to manage events using AI, booking, customer management, and administration.

Overall, the proposed methodology enables efficient event planning, intelligent customer assistance, secure data management, and effective administrative control. The combination of automation, AI chatbot support, booking management, and analytics ensures better coordination, improved productivity.

8. Working Process

In the working process of the AI Event Management System, initially the user will log into the system, and he will select the event that he would like to plan. There are many event types in which the user could select according to his choice. He may want to plan a wedding party or birthday celebration or a corporate event or cultural event or social event. Based on the requirement, the system will let him go through all those aspects like the event theme, event packages, and other facilities for the event. The user can check all the themes, packages, and others related to the event he wants to plan. Once all those aspects are decided upon, then users will fill up the booking form and confirm booking by filling up the form with some necessary details like the number of

guests, the place where the event will take place. The chatbot module for the AI is always there to help users in the process of booking. The customer may ask any question pertaining to packages, cost, availability, time schedule, and services. The chatbot will give a quick response and provide customers with required information immediately without the need for manual assistance from administrators. Once booking has been successfully made, the administrative dashboard will be in charge of managing the event database, customer review, notifications, and revenue report. All these can be easily monitored by administrators. This will ensure proper coordination and management of events.

9. Dataset description

The Event Management System uses a list of information to plan events handle bookings, store customer information and keep track of things like event packages and extra services. This list of information comes from people signing up booking events choosing packages and asking questions. It helps the system suggest events that people might like keep track of bookings figure out how much events cost and make customer support better. The list of information is stored in a kind of database and gets updated every time someone uses the system.

The list of information has lots of parts like users, events, themes, packages, extra services, bookings and conversations with the chatbot. Each part has the information that is needed to make sure events are managed properly. The information that is collected helps the people in charge watch bookings see what customers like and make the system work better. The Event Management System uses this information to make things easier, for customers and to make sure events go smoothly.

Attribute Name	Description
User ID	Unique identifier for each user
Full Name	Name of the customer
Email	Customer email address
Phone Number	Contact number of the customer
Event Type	Selected event category
Theme Name	Selected event theme
Package Name	Chosen event package
Add-On Services	Additional services selected by customer
Event Date	Date of the event
Venue	Event location



Number of Guests	Expected guest count
City	Event city
Budget Range	Customer budget preference
Total Amount	Final calculated event cost
Booking Status	Booking confirmation status
Chatbot Query	User query submitted to chatbot
Chatbot Response	Response generated by chatbot

10. Implementation

AI Event Management System Implementation refers to the design and integration of several modules that enable event booking, event scheduling, user interaction, and administrative management. These functions are achieved by implementing HTML, CSS, JavaScript, React.js, Python, and SQLite in the design of the system. AI Event Management System Implementation places emphasis on the creation of a user-friendly platform enabling customers to manage events effectively and giving full authority to administrators. Event booking, event themes, event packages, AI Chatbots for customer support, reviews management, notification, and revenue analytics are integrated in the implementation of AI Event Management System. All these features are carefully designed to ensure effective communication among users, administrators, and database.

User Registration and Authentication: The user logs into the system and fills in the necessary data for event booking. The system has secured authentication and validation systems in place to prevent any unauthorized access to system functions by users and administrators.

Event Selection and Personalization: Users choose the category of event which may include weddings, birthdays, corporate events, or other social events. The system gives the users choices regarding themes and packages, among others. These can be personalized as per user requirements.

Booking Management: Details relating to event selection, theme choice, packages, and service choices are handled through the system. Data regarding bookings is then stored in the database and unique booking records are created.

Integration of AI Chatbot: There is an AI Chatbot integrated into the system for providing immediate

answers to customers on price issues, package plans, schedules of events, and other booking information..

Database Management: SQLite database is employed in order to save customer information, booking history, reviews, alerts, and all information about events. It guarantees fast access to all the necessary data stored within the system.

Administrative Dashboard: The administrative dashboard enables administrators to track bookings, manage upcoming and past events, see the reviews left by customers, and monitor financial stats.

Notification and Review Management: The software creates notifications and updates to notify users about the status of events. Users can even rate and review services which will help administrators assess their quality.

Deployment and Maintenance: When developed, the system is deployed as a web application that is accessible by internet-based devices. System maintenance is done regularly to ensure optimum performance and event management processes.

In conclusion, the development process includes the use of intelligent automation, event booking management, customer management services, and administrative monitoring.

11. Tools and Technology

There are different tools and technologies needed to develop the AI-based Event Management System to enable proper and optimal performance of the system. Modern web technologies are required for the creation of the system, which will facilitate the booking, scheduling, communication, and management of events. Web technologies ensure that a flexible system is created that can be used to manage different kinds of event management activities. HTML, CSS, and JavaScript are the tools that are required for developing the frontend of the application. The React.js tool is used to develop the user interface. Python is used as the backend technology to perform different operations. This will allow us to develop a system that is capable of managing booking requests. The AI Chatbot functionalities will also be implemented with the help of Python. SQLite is used as a database management system to store all the necessary data of the customers and the administration.



12. Challenges

Some of the key difficulties involved in the design and deployment of AI Event Management System include problems that might arise affecting the performance of the system and its efficiency in use. Due to the inclusion of aspects such as event booking and scheduling, customer interactions, database maintenance, and help from artificial intelligence chatbots in the process, there are some specific challenges that can be considered.

Security and Data Privacy: There will be the need to ensure that customer data, bookings made, customer reviews, and other related details are protected from any form of exploitation or security breaches in the course of using the system.

Booking Conflicts and Schedule Overlap Problems: Handling various event bookings at the same time could result in scheduling problems or booking overlaps. The software needs to have the ability to check for any booking date conflicts and overlap to prevent booking problems.

Accuracy of AI Chatbot: The AI chatbot has to be able to give accurate answers to all the queries that customers ask. Giving different queries from diverse users a proper answer might be complicated, particularly if they are ambiguous.

Database Management Problems: With more customers using the system, there will be many records stored in the database, making the handling of all this data problematic. Effective management of these records is essential.

Real Time Performance: The system should be designed in such a way that there will be real time performance when it comes to making the reservations or even communicating with customers. Any delay in the processing of their requests or information retrieval could greatly affect the user experience.

User Requirements Diversity: Different customers will have diverse requirements regarding the type of events, theme, budget, and services required by the user. The development of a system that caters to these varying needs while at the same time remaining simple would be an arduous task.

13. Future Work

The AI Event Management System offers a convenient means of event planning, management of bookings, customer interaction, and administration tracking. While the current system manages to automate numerous event management tasks, there are a number of possibilities that could be explored in terms of future developments to enhance system capabilities and functionalities.

Integration of Online Payments: Future iterations of the system could be integrated with secure online payment portals to enable customers to book and pay for events via the system itself. This will help make payment processes easier and less cumbersome.

Development of a Mobile Application : The system could also be further developed as a mobile application for use on Android and iOS phones. This would give users greater flexibility in terms of event booking, notifications, and customer support.

Recommendations for Further Advancement of Artificial Intelligence: Further improvement can be done in the development of AI to make it capable of recommending events customized according to the taste and preferences of the customer along with other parameters like their budget and recent bookings.

Notifications : In the future, real-time notifications for booking confirmations, time table changes, event alerts, and even promotions can be added through SMS, emails, and push notifications.

Support for Multiple Languages: It can be made multilingual to facilitate customers with different languages.

Live Event Tracking : A live event tracking system can be included to track event progress, status of service completion, and even real-time event information for both the customer and administrator.

Analytic Tools and Reporting: The upcoming version will include advanced analytics and reporting to allow business analysis and facilitate informed decision-making for the administrator.

14. Conclusion

AI Event Management System is a result of efforts made to come up with a reliable, efficient, and customer-friendly solution for the modern era's event



management. The system has successfully integrated the functionalities of booking events, selecting event themes, customizing event packages, using AI chatbots, receiving customer reviews, receiving notifications, and administrative control all within one online web portal. The automation of different activities in the event management process leads to increased efficiency. The main strength of the suggested system is that it allows for an easy way of arranging events for both customers and administrators. Customers will be able to navigate across different types of events, choose their themes, package customization, and arrange their bookings. In addition to this, an AI chatbot will give customers immediate feedback on any queries regarding events and booking details. Additionally, the system allows administrators to have access to a dashboard where they can manage their bookings, oversee future and past events, review income reports, and evaluate customers' feedbacks. Such an effective system of administration makes it possible to improve the process of making decisions, raise the level of services, and facilitate coordination of actions related to event management. The utilization of modern technologies, such as HTML, CSS, JavaScript, React.js, Python, and SQLite, guarantees reliability and efficiency of the application. Moreover, the proposed system will make it possible to reduce potential scheduling conflicts, provide more accurate and convenient booking system, as well as create additional transparency in the process of event management. Intelligent features and automatic actions contribute to minimizing possible mistakes and errors, increasing the speed of work and the quality of services provided. Users will enjoy fast processing of requests, access to necessary information, and efficient interaction with event organizers.

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