



Design and Development of a College Website with an AI Chatbot (MCET Buddy)

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Abstract: In the modern digital era, educational institutions rely heavily on web-based platforms to communicate with students, parents, and stakeholders. However, traditional college websites often lack interactivity and fail to provide instant responses to user queries, leading to inefficiencies in information access. This paper presents the design and development of a responsive college website integrated with an intelligent chatbot named “MCET Buddy.” The system is developed using HTML5, CSS3, and JavaScript to ensure cross-platform compatibility and a seamless user experience across various devices. The chatbot is implemented using a rule-based keyword recognition mechanism that provides real-time responses to frequently asked queries related to admissions, faculty, courses, and campus events. This significantly reduces the workload on administrative staff and enhances user engagement. Additionally, the website incorporates a dynamic gallery and structured academic modules to improve accessibility and presentation of institutional information. The proposed system demonstrates an effective solution for bridging the communication gap between students and administration while offering a scalable foundation for future enhancements such as Natural Language Processing (NLP) integration and backend database connectivity.

Index Terms - Chatbot, Web Development, HTML, CSS, JavaScript, Education Technology

I. INTRODUCTION

In the rapidly evolving digital era, educational institutions increasingly rely on online platforms to communicate with students, parents, and other stakeholders. A college website acts as the primary interface for accessing academic information such as admissions, course details, faculty profiles, and campus announcements. However, many traditional college websites are static in nature and lack interactive capabilities, making it difficult for users to obtain specific information quickly and efficiently.

One of the major challenges faced by educational institutions is handling a large number of repetitive queries related to admissions, fees, courses, and events. These queries are typically managed manually through phone calls, emails, or in-person visits, which leads to delays, inefficiency, and increased workload on administrative staff. In today’s fast-paced digital environment, users expect immediate responses, which conventional systems often fail to deliver.

To address these challenges, this paper proposes the design and development of a responsive college website integrated with an intelligent chatbot named “MCET Buddy.” The chatbot provides real-time responses to user queries using a rule-based keyword matching approach. The system is developed using HTML5, CSS3, and JavaScript to ensure cross-platform compatibility and responsiveness across various devices.

The integration of chatbot technology into the college website enhances user interaction, improves accessibility of information, and significantly reduces manual effort. The proposed system aims to bridge the communication gap between students and the institution while providing a scalable solution for future enhancements such as Natural Language Processing (NLP) and database integration.

II. RELATED WORK

Over the years, educational websites have evolved from simple static pages to dynamic and interactive platforms. Early systems were primarily developed using basic HTML, which provided limited functionality and lacked responsiveness. These systems were not optimized for mobile devices, resulting in poor user experience and accessibility issues.

With the advancement of web technologies such as CSS3 and JavaScript, modern websites now support responsive design and interactive features. Responsive Web Design (RWD) ensures that web applications adapt seamlessly to different screen sizes and devices, which is essential as a significant portion of users access educational platforms through smartphones and tablets.

In recent years, chatbot technology has gained significant attention in the field of web development and educational systems. Chatbots are automated conversational agents designed to simulate human interaction and provide instant responses to user queries. Various studies have demonstrated that chatbots can effectively handle frequently asked questions, reduce response time, and improve user satisfaction.

Advanced chatbot systems utilize Artificial Intelligence (AI) and Natural Language Processing (NLP) to understand user intent and provide context-aware responses. However, such systems often require complex implementation, large datasets, and computational resources. In contrast, rule-based chatbots, which rely on predefined keywords and responses, offer a simpler and more cost-effective solution for many applications, especially in educational institutions.

Despite these advancements, many existing college websites still lack integrated chatbot systems and real-time support features. This project addresses these limitations by developing a responsive website combined with a lightweight and efficient chatbot, providing instant and accurate responses while maintaining simplicity and ease of implementation.

III. SYSTEM DESIGN

The proposed system is designed as a client-side web application that integrates a responsive user interface with a rule-based chatbot system. The architecture of the system focuses on simplicity, efficiency, and ease of deployment without requiring complex backend infrastructure.

System Architecture

The system consists of the following main components:

- User Interface (UI)
- Chatbot Engine
- Keyword Database
- Website Modules (Gallery, Navigation, Academic Pages)

The user interacts with the system through a web browser. The chatbot processes user queries and generates responses based on predefined rules stored in the keyword database.

Frontend Design

The frontend of the system is developed using:

- **HTML5** for structuring content
- **CSS3** for styling and responsive layout
- **JavaScript** for interactivity and chatbot logic

The website follows a responsive design approach, ensuring compatibility across desktops, tablets, and mobile devices. The layout includes sections such as homepage, about, academics, gallery, and contact information.

Chatbot Design

The “MCET Buddy” chatbot is implemented using a rule-based keyword matching algorithm. The chatbot operates through the following steps:

1. **User Input Processing**
 - a. The user enters a query in the chatbot interface
 - b. Input is converted to lowercase
 - c. Extra spaces and unnecessary characters are removed
2. **Keyword Matching**
 - a. The processed input is compared with predefined keywords
 - b. Keywords are stored in a structured format (arrays/objects in JavaScript)
3. **Response Generation**
 - a. If a match is found → corresponding response is displayed
 - b. If no match → default fallback response is shown

This approach ensures fast and efficient responses without requiring server-side processing.

Additional Modules

The system includes several supporting modules:

- **Navigation System**
Enables smooth transitions between different sections of the website
- **Image Gallery**
Displays images in a responsive grid layout with lightbox functionality
- **Academic Information Pages**
Provide structured details about courses, faculty, and admissions

System Advantages

- Fast response time (real-time interaction)
- Lightweight and cost-effective
- Easy to maintain and update
- No need for complex backend infrastructure
- Scalable for future enhancements

Table 1 Core modules of Website

Module	Function
User Interface	Provides interactive web pages for users to access information easily.
Chatbot Engine	Processes user queries and generates appropriate responses
Keyword Database	Stores predefined keywords and corresponding responses
Navigation System	Enables smooth movement between different sections of the website
Image Gallery	Displays images in a responsive grid with lightbox functionality
Academic Information	Provides details about courses, faculty, admissions, and announcements

IV. IMPLEMENTATION DETAILS

The implementation of the proposed system focuses on developing a lightweight, responsive, and interactive web application using standard frontend technologies. The system is implemented using HTML5, CSS3, and JavaScript, ensuring compatibility across multiple devices and platforms without requiring complex backend infrastructure.

The structural layout of the website is created using HTML5, which organizes content into meaningful sections such as homepage, academics, gallery, and contact information. CSS3 is used to enhance the visual appearance of the website by applying styles, layouts, and responsive design techniques. Media queries are utilized to ensure that the website adapts effectively to different screen sizes, providing a consistent user experience across desktops, tablets, and mobile devices.

JavaScript plays a crucial role in implementing the dynamic behavior of the system, particularly the chatbot functionality. The chatbot is developed using a rule-based approach, where user inputs are processed and matched against predefined keywords stored in JavaScript arrays or objects. When a user submits a query, the input is first normalized by converting it to lowercase and removing unnecessary spaces. The system then searches for matching keywords and returns the corresponding response.

If the input does not match any predefined keyword, the chatbot provides a default fallback response, guiding the user to rephrase the query or explore other sections of the website. This ensures that the chatbot remains user-friendly and responsive even in cases where exact matches are not found.

The website also includes additional interactive features such as a responsive navigation bar, a dynamic image gallery with lightbox functionality, and structured academic pages. These features are integrated seamlessly to enhance usability and provide a smooth browsing experience.

The overall implementation ensures that the system is efficient, easy to maintain, and scalable for future enhancements. The absence of server-side processing reduces complexity and deployment cost, making it a practical solution for educational institutions.

V. PRELIMINARY EVALUATION AND DISCUSSION

The developed system was evaluated based on performance, usability, and responsiveness to ensure its effectiveness in a real-world educational environment. The website was tested across multiple devices, including desktops, tablets, and smartphones, to verify its responsive design and cross-platform compatibility. The results indicate that the system adapts efficiently to different screen sizes, maintaining consistent layout and readability.

The chatbot component, “MCET Buddy,” was tested using a variety of user queries related to admissions, courses, faculty information, and campus activities. The chatbot demonstrated accurate responses for queries that matched predefined keywords, with an average response time of less than one second. This confirms that the system is capable of providing real-time interaction without noticeable delays.

Usability testing was conducted by simulating typical user interactions, such as navigating through pages, accessing information, and interacting with the chatbot. The navigation system functioned smoothly, and all links were verified to be working correctly. The image gallery module performed efficiently, displaying images in a responsive grid layout and allowing users to view them in full size using lightbox functionality.

However, the system also has certain limitations. Since the chatbot is based on a rule-based approach, it may not fully understand complex or ambiguous queries that do not match predefined keywords. In such cases, the system provides a fallback response, which may require users to rephrase their queries.

Overall, the evaluation results indicate that the proposed system effectively improves accessibility, reduces response time, and enhances user interaction. The integration of the chatbot significantly reduces manual workload and provides a practical solution for handling frequently asked queries in educational institutions.

VI. CONCLUSION

The project titled “Design and Development of a College Website with an AI Chatbot (MCET Buddy)” has been successfully designed and implemented as a responsive and interactive web application. The system addresses the limitations of traditional college websites by incorporating a chatbot that provides instant responses to user queries.

The integration of the chatbot enhances user experience by enabling real-time communication and reducing dependency on manual support systems. The use of modern web technologies such as HTML5, CSS3, and JavaScript ensures that the system is lightweight, efficient, and compatible with a wide range of devices.

The project demonstrates the potential of combining web development with chatbot technology to improve communication and accessibility within educational institutions. It provides a scalable and cost-effective solution that can be further enhanced with advanced technologies such as Natural Language Processing (NLP) and database integration.

Overall, the system successfully achieves its objectives and serves as a strong foundation for future development in intelligent educational web applications.

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