

A Review of Student Helper Chatbot

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Abstract –

This paper presents the development and implementation of an advanced college enquiry chatbot, utilizing Natural Language Processing (NLP) techniques to address the escalating strain on college resources due to the increasing volume of student inquiries. As higher education institutions experience growing numbers of prospective and current students seeking information, traditional methods of handling these inquiries have proven inefficient. The proposed chatbot is designed to alleviate this issue by providing immediate, accurate, and contextually relevant responses to frequently asked questions related to various aspects of college life, including courses, admissions, scholarships, and campus facilities. By employing sophisticated AI algorithms and NLP models, the chatbot effectively interprets user queries in natural language, offering personalized and real-time assistance. This approach not only streamlines the process of information retrieval but also significantly enhances the user experience by reducing the time students spend searching for information and improving overall website usability. The chatbot represents an innovative solution to optimize college resource management while delivering seamless and interactive support to students, thus contributing to the efficiency and effectiveness of campus communication systems.

Key Words: Student Helper Chatbot Web-based Application, HTML, CSS, JAVASCRIPT, MySQL

1. INTRODUCTION

The college admissions process has long been a complex and time-consuming task, both for prospective students and college staff. With an increasing number of students seeking information on courses, admissions criteria, scholarships, and campus facilities, the pressure on traditional support resources has never been higher. College websites, although providing valuable resources, are often insufficient in managing the growing volume of inquiries in an efficient and timely manner. As a result, the existing support structures are stretched thin, making it difficult for college staff to address all inquiries in a timely and personalized manner. This imbalance can lead to frustration among students and increased workloads for college staff.

To address this challenge, the implementation of a college enquiry chatbot powered by Natural Language Processing (NLP) presents a promising solution. NLP, a subset of Artificial Intelligence (AI), focuses on enabling machines to understand, interpret, and generate human language in a way that is both meaningful and contextually accurate. A chatbot using NLP techniques can be employed to interact with users in natural language, effectively answering a wide range of questions related to admissions, academic programs, scholarships, campus facilities, and more. This not only reduces the strain on college staff but also ensures that students receive accurate, prompt, and relevant information at any time of the day.

The college enquiry chatbot is specifically designed to comprehend and process user queries using advanced AI algorithms. Unlike traditional chatbots, which may rely on predefined responses, this AI-driven system is capable of understanding complex queries, providing tailored and dynamic answers, and continuously improving its accuracy through machine learning. By leveraging these sophisticated capabilities, the chatbot enhances user experience by reducing search times, improving website navigation, and making the process of obtaining information more seamless and efficient for prospective students.

In addition to enhancing the user experience, the integration of this AI-driven chatbot contributes significantly to improving the usability and efficiency of the college's online resources. The chatbot can answer frequently asked questions in real time, guide students through application processes, and reduce the need for human intervention, which can be especially helpful during peak periods such as application deadlines or enrollment seasons.

1.1 Objectives

The primary objective of this college enquiry chatbot is to streamline the admissions and registration process for both prospective students and college staff. By providing comprehensive college information, ensuring easy access to information, minimizing query resolution time enabling effective communication, and simplifying the user experience, the chatbot aims to reduce the time and effort required for students to enroll, while also improving the efficiency of college admissions processes.

1.2 Scope

A college inquiry chatbot powered by NLP algorithms can revolutionize the way colleges interact with students. By understanding and processing natural language, it can provide real-time, personalized responses to queries about admissions, courses, campus life, financial aid, and more. The chatbot can automate tasks like application tracking, fee payments, and scheduling, while also answering frequently asked questions 24/7.

1.3 Literature Survey

Ref. No.	Reference paper Name	Author Name	Method
[1]	college enquiry chatbot	Ashwini Patil	In this paper regarding the college. The interaction between computer and human will be easily understand when we use NLP. Smart bot, interactive agents, digital assistants, education and intelligent conversation entities are all terms use to describe chatbot.
[2]	college enquiry chatbot	Kakumani manasa	In this paper regarding the college, the information may be like "how many branches in college?", "what are the courses offered by the college?", "how many students per each branch?".Which used Natural Language Processing(NLP) libraries and Artificial Intelligence Language(AI) to have conversation with humans. The interaction between computer and human will be easily understand when we use NLP.
[3]	An interactive chatbot for college enquiry.(2023)	Karim ali	implemented an chatbot is a computer software that , when conversed with through text or voice replies. Smart bot, interactive agents, digital assistants, education and intelligent conversation entities are all terms use to

			describe chatbot .This chatbot was created using AI algorithms that analyze user request.
[4]	AI college enquiry chatbot system.(Feb 2023)	Gokul R, Kalaivani S	In this paper we present a college enquiry chatbot system design to provide weak and efficient responses to student queries. The chatbot was build using NLP and machine learning algorithm.
[5]	Chatbot for college enquiry.(Mar 2021)	Geethu Wilson's	Geethu Wilson's study focuses on developing a College Enquiry Chatbot that uses algorithms to interpret and understand student queries. This web-based chatbot is designed to provide immediate answers to students' questions by analyzing their input and responding in a way that mimics human interaction. It helps students by quickly retrieving relevant information, such as notices and announcements, without the need for manual searching. By automatically browsing and delivering up-to-date notifications, the chatbot significantly reduces the time students spend looking for information, enhancing their overall experience.
[6]	Interactive Chatbot for College Enquiry	Mina Rafik's	Mina Rafik's study focuses on developing an Interactive Chatbot for College Enquiry aimed at assisting university students with their inquiries. The chatbot uses artificial intelligence and natural language processing to recognize and understand student queries, providing accurate and timely

			responses. The study involves creating a system architecture to manage communication and ensure the chatbot delivers appropriate replies. An experimental campaign was conducted to test the system's effectiveness and feasibility, verifying its ability to efficiently support students in the educational domain.				relevant updates without wasting time searching. By using artificial intelligence, the chatbot efficiently answers questions and delivers up-to-date information about college activities and notices.
[7]	RUBON College Enquiry Chatbot(May 2021)	Mayur Pawar's	The chatbot system analyzes and understands user questions, providing responses as if a real person were answering. It serves as a real-time assistant for admission seekers, especially in the context of higher education institutions in India, where setting up live support can be challenging. The system features a user-friendly graphical interface that allows students to register, log in, and access various help pages. Through these pages, students can interact with the chatbot, which answers questions related to college activities using advanced technology.	[9]	Intelligent Chatbot For College Enquiry System (Apr 2022)	Pranali Patil	Pranali Patil study on the Intelligent Chatbot For College Enquiry System. The proposed chatbot will communicate in a human-like manner, giving users the impression of conversing with a person. It allows students to access college-related information anytime and anywhere by selecting specific query categories. Students can ask questions about admissions, faculty, and more. This system reduces the workload for college administration and staff by automating the process of answering student inquiries.
[8]	College Enquiry Chatbot(Mar 2020)	Rishi Krishna	Rishi Krishna's study on the College Enquiry Chatbot focuses on developing a system that uses algorithms to interpret and understand student queries. This web-based application allows students to ask questions through the chatbot, which then analyzes the input and provides accurate, human-like responses. The system can also access and read text notices or PDF documents, helping students quickly find	[10]	College enquiry bot.(2019)	Kishor Kumar	A chatbot is a computer program that uses auditory or textual methods to conduct conversations. It stores information in its database to analyze queries and generate appropriate responses. A college enquiry chatbot will be built using algorithms to understand student questions and provide answers via a web application. If an answer is invalid, the system can flag it, allowing the college administrator to modify or delete it. The chatbot will provide information about college

			websites, faculty interactions, and results, helping students find relevant details easily.
[11]	College enquiry for student using AI chatbot	Vishal Patil	A chatbot is an AI-powered program that helps users by answering their questions, particularly in university settings. It uses natural language processing (NLP) to understand and respond to inquiries related to exams, admissions, academics, attendance, grades, and placements. The chatbot improves the user experience on university websites by offering quick, accurate, and accessible information. By interacting through graphical interfaces or text-based systems, it provides a seamless, stateful service where data is saved across sessions, allowing students to get answers without needing human assistance.
[12]	College enquiry chatbot (2021)	Kusunam Nandini	The College Enquiry Chatbot is a web-based application designed to provide information about the college. It answers queries related to the college, such as the number of branches, courses offered, and student distribution across branches. The chatbot uses Natural Language Processing (NLP) and Artificial Intelligence (AI) to understand and respond to user queries in human language, enabling smooth communication between users and the system. The chatbot can be accessed from various devices (like computers, mobiles, or tablets) and provides information anytime

			and anywhere, making it an efficient tool for students seeking details about the college.
[13]	College enquiry chatbot using iterative Model(2018)	Payal Jain	This paper proposes the development of a chatbot designed to assist new undergraduate students at Jaypee Institute of Information Technology. The chatbot aims to help students understand and address various issues and questions they have during and after the admission process. By using a stop words-based human-computer interface, the chatbot allows students to communicate in natural English, providing answers and support specific to the college admission experience.

2. Methodology

It describes the technique used in this CHATBOT USING AI as well as the planning it. This design will be created using the most advanced technology that are currently used, which gives the website more capability and productivity.

The planning and workflow for the design are covered in this section. The extension will be created with the help of mostly three lines and the database provider.

- The HTML extension.html and used as framework for the front end in our project.

- JavaScript the operation's backend functionality is provided by JavaScript train (extension.js).

- CSS used for the better graphical interface to the html extensions.

- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.

- For the database we implemented MySQL as database provider.

- XAMPP web server are used for application testing on a local host webserver.

Student:

The Student Login feature allows students to access the app using a password sent to their mobile number, with the option to save the login credentials for future access. For adding a new student, the Admin initiates the process by entering the student's details. The system then generates an OTP (One-Time Password) and sends it directly to the student's mobile phone for verification. This ensures secure and easy registration for students on the platform.

2.1 Module Descriptions

1. OTP Authentication:

OTP authentication is a security measure that ensures the identity of the user by sending a unique, temporary code to the registered mobile number of the user (in this case, a student). The code is used for one-time access, enhancing the security of the system by ensuring that only the person with the correct mobile number can authenticate their identity.

2. User Receives OTP:

When a student tries to access the system, an OTP is generated automatically by the system and sent to the student's registered mobile number. The student then enters this OTP into the system to verify their identity. This process ensures that the person accessing the system is the legitimate user.

3. Student Registration:

The Admin is responsible for adding the student to the system. Once the student's information is entered into the system by the admin, an OTP is generated by the system and sent to the student's mobile number for verification. This ensures that the student's registration is legitimate and connected to a valid mobile number.

4. Access Control:

The final step in this process is access control, which is achieved based on the successful OTP authentication. If the student enters the correct OTP received on their mobile device, they are granted access to the system. If the OTP is incorrect or expires, the student will not be able to proceed, preventing unauthorized access and maintaining the security of the system.

3. Existing System

In the past, students and their parents faced significant challenges when seeking information about college courses, fee structures, and the admission process. To gather such details, they often had to physically visit the college, navigate long processes, and spend considerable time waiting for responses. This traditional method was not only time-consuming but also required considerable manpower to manage inquiries and provide the necessary information.

However, with the advancement of technology, the education system has undergone significant transformations. The traditional approach of collecting and disseminating course information manually is increasingly being replaced by more efficient, technology-driven solutions. Over time, various digital systems and devices have emerged to simplify the process, reducing the need for physical visits and the labor-intensive work involved in managing inquiries.

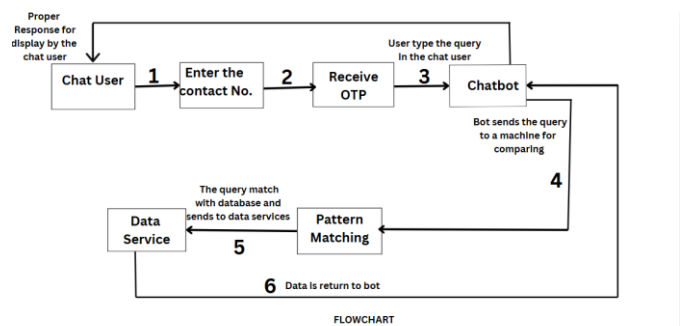
As a result, students and parents no longer need to go through the cumbersome process of visiting the campus to obtain details about courses, fees, and admission procedures. Modern technology, particularly through online platforms and automated systems, now enables instant access to this information. This shift not only saves time but also eliminates the need for excessive manpower, allowing colleges to streamline their operations and focus on other critical tasks.

By leveraging these technological advancements, colleges can now provide instant and accurate responses to inquiries, making the process more convenient for students and parents while also optimizing administrative workflows. This evolution in the education sector highlights how technology has played a pivotal role in transforming the way educational institutions manage and deliver essential information.

4. Use Case Diagram

Use case diagrams identify the functionality provided by the system (use cases), the users who interact with the system (actors), and the association between the users and the functionality. Use cases are used in the analysis phase of software development to articulate the high-level requirements of the system.

5. Workflow Explanation:



Chatbot with Contact Number Verification and OTP

User Enters Contact Number:

The process begins when the user interacts with the chatbot by entering their contact number into the chatbot interface. This number could be used for various purposes, such as

verification, registration, or account-related inquiries. The chatbot captures this input to initiate the next step.

Pattern Matching and Validation:

Upon receiving the contact number, the chatbot employs pattern matching techniques to verify that the entered number is in a valid format (e.g., checking for the correct number of digits, country code, and proper structure). If the format is incorrect, the chatbot prompts the user to re-enter the correct contact number. Once validated, the chatbot confirms the validity of the number and moves on to the next step.

OTP Generation:

After validating the contact number, the chatbot initiates the OTP (One-Time Password) generation process. The system generates a unique, time-sensitive code that will be sent to the provided contact number. This OTP serves as a temporary authentication key for the user, ensuring that the number entered belongs to the user and is legitimate.

OTP Delivery:

The generated OTP is then sent to the user's contact number via an SMS or other messaging services, depending on the setup. The chatbot notifies the user that the OTP has been sent and provides instructions for its use.

User Enters OTP:

The user receives the OTP on their mobile device and enters it into the chatbot interface. The chatbot prompts the user to input the code, ensuring that it matches the one sent previously. This step helps ensure that the user is the legitimate owner of the entered contact number.

OTP Verification:

Once the user submits the OTP, the chatbot compares it against the generated code stored in its system. If the entered OTP matches the one sent to the user, the chatbot verifies the user's identity successfully. In case of an incorrect OTP, the user is prompted to retry entering the correct code or to request a new OTP if necessary.

Data Services and Final Response:

Upon successful OTP verification, the chatbot can now provide access to the intended data services, such as account registration, personalized assistance, or any other feature that requires verification. If the OTP is valid, the chatbot may proceed with further interactions, like answering user queries, providing information, or completing transactions. If the verification fails (after multiple attempts), the chatbot may offer the user the option to restart the process or contact customer support.

End of Interaction:

After completing the verification process, the chatbot can end the interaction or continue offering other services as needed. The user is now authenticated and can proceed with their intended activities, such as accessing services or engaging in further chatbot interactions.

6. CONCLUSIONS

The development of a college enquiry chatbot using NLP presents an opportunity to revolutionize the college admissions process by providing an efficient and user-friendly interface for prospective students. The chatbot's ability to understand natural language and provide instant responses will alleviate the burden on college staff, reduce waiting times and enhance the overall experience for students. By leveraging the power of NLP, the chatbot will offer accurate and personalized information, fostering a positive impression of the college and increasing the likelihood of successful enrollments. Ultimately, the implementation of this innovative solution will lead to improved efficiency, customer satisfaction, and increased enrollment rates for the college.

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