

# AN INTELLIGENT CHATBOT SYSTEM FOR COLLEGE WEBSITE

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**Abstract** - In modern educational institutions, the need for quick and efficient access to information is increasingly important for students, faculty, and visitors. This model introduces an intelligent chatbot system designed to streamline the process of searching and retrieving information about college details. The system leverages geographic information, using a campus website as a core dataset, to provide detailed directions in addition to traditional department information such as contact details, course offerings, and events. The chatbot is powered by Natural Language Processing (NLP) techniques, enabling it to understand and respond to a wide range of user queries. By integrating with the college's existing databases and incorporating a detailed map of the campus, the chatbot offers precise navigation assistance, guiding users to specific department locations. This approach not only enhances the user experience but also reduces the time and effort required to find departments within large and complex campus environments. The system's adaptability allows for continuous updates and improvements based on user interactions, ensuring that the information provided remains current and accurate.

**Key Words:** Natural Language Processing (NLP), Machine Learning, Deep Learning, Artificial Intelligence, Neural network.

## I. INTRODUCTION

In today's fast-paced educational landscape, quick and efficient access to information is essential for students, faculty, and visitors. To address this need, we present an intelligent chatbot system specifically designed to streamline the search and retrieval of college-related information. This innovative system leverages a comprehensive campus website as its primary dataset, integrating geographic information to provide users with detailed insights into various college offerings, including contact information, course offerings, and event schedules.

Powered by advanced Natural Language Processing (NLP) techniques, the chatbot can understand and respond to a diverse range of user queries, making it an invaluable resource for navigating the complexities of modern academic institutions. By seamlessly integrating with the college's existing databases, the chatbot offers accurate and relevant information, significantly enhancing the overall user experience.

This approach not only simplifies the process of obtaining information but also reduces the time and effort required to find answers to common questions. Additionally, the system's adaptability allows for continuous updates and improvements based on user interactions, ensuring that the information provided remains current and accurate. Ultimately, this intelligent chatbot serves as a pivotal tool in enhancing communication and accessibility within educational institutions, providing a smarter way for users to engage with their college environment.

In this project it handles simple queries related to college only. If we give queries other than the college it won't respond to that query. Another drawback is writing queries for different scenarios are very time consuming. The queries are asked in the form of text like English language chatbot also give response in the form of text only. Whenever User uses chatbot use may feel like he/she may talk to the staff from the college. AI provides several features for the chatbot to behave like smart and responses to the query in intelligent way.

The main purpose of this project is to make conversion between human and computer in a situation where human unable to come to the college to know information regarding college like admission details, placements, fee structure, exam branch, canteen, different departments information, courses that are offered by the college etc. With this we can easily know the information regarding college in less time through virtually.

## I.I PROBLEM STATEMENT

Students often encounter difficulties in obtaining timely and accurate information from college help desks, requiring costly and time-consuming physical visits to campus. This reliance on in-person inquiries can lead to communication gaps between students and college administration. Traditional methods of accessing information, such as static websites and manual inquiries, are often inefficient, resulting in frustration and delays. To address these challenges, there is a need for an online chatbot system that leverages a well-informed database and employs Artificial Intelligence (AI) and Natural Language Processing (NLP) techniques. This system aims to provide quick and efficient responses to student queries, enhancing communication, reducing the burden of travel, and streamlining access to essential college information.

## I.II OBJECTIVE

The objective of this project is to develop an intelligent chatbot system that uses AI and Natural Language Processing (NLP) to provide students with quick, accurate, and real-time information. The chatbot will streamline access to essential college-related details, such as admissions, fees, and event schedules, reducing the need for physical campus visits and minimizing communication gaps between students and the college. By integrating with the college's database, the system aims to enhance user experience and improve the efficiency of student support services. The chatbot will also provide the college's location details, offering users directions and relevant geographic information, making it easier for them to find the campus or specific departments when needed.

## I.II SCOPE

The chatbot system is designed to simplify communication in the educational system by providing students with 24/7 access to essential college information, such as admissions, fees, scholarships, and event schedules. This eliminates the need for physical visits to the campus and allows students to access necessary documents for admissions remotely. By automating routine queries, the chatbot reduces the workload on administrative staff, improving operational efficiency. Overall, the project promotes a digital-first approach, making college information more accessible in a post-pandemic educational environment.

## II. RELATED WORK

Some examples of chatbots that are currently operational in real-time include Slush, Vainu, and Sephora, which use AI technology to enhance customer interactions. Slush, for instance, is a chatbot that responds instantly to customer queries, significantly reducing response times compared to the manual process, which often takes much longer. With a large number of customers seeking support, it becomes challenging for human staff to address each issue promptly. Chatbots, by providing immediate responses, offer a solution to this problem and work around the clock, ensuring 24/7 availability for users.

## III. EXISTING SYSTEM

In the earlier days students had to visit the college to enquire about details like courses, fee structure, admission process as well as long process for both parents as well as students. Now a days there are many changes occurred in the education system with help of advanced technology. Everything is happening over the internet without any trouble. In those days for enquiring about courses we have to visit the college, but as the days are passing away its completely changing. Collecting the course details, fee structure manually will be a big procedure and it also needs

a manpower. For reducing that manpower and avoid such difficulties and time consuming many devices or systems were emerged day by day.

## IV. PROPOSED SYSTEM

The proposed system is an AI-based chatbot designed to answer users' questions in a textual format. It processes the text using Natural Language Processing (NLP) to understand the question and find an appropriate response. NLP divides human language into smaller components, allowing the system to analyze the grammatical structure and context to comprehend the meaning behind the question. For example, when a user asks, "How many departments are there in the college?" the chatbot will respond with, "The college has 6 departments." The main goal of the system is to reduce the workload on college faculty by allowing the chatbot to handle visitor inquiries about the college. This web-based chatbot can be integrated into the college's website, providing a quick and easy way for visitors and faculty to have their questions answered. Additionally, developers can update the chatbot's information repository as new information becomes available. The input will go to several steps like parsing, tokenization, stemming. Input will be parsed to the chatbot and this input will be undergone to stemming and tokenization. There are many languages to build chatbot we should choose such language like which is having object-oriented concepts. In this project python language is chosen. Because it is user friendly. In this we use Artificial Neural Network algorithm, JSON as database and flask as framework.

## ADVANTAGES

- It gives response in the form of queries rather than options.
- It provides 24/7 service
- It takes less time to respond

## DISADVANTAGES

- Chatbots rely heavily on the information they have been programmed with. If the database isn't regularly updated, the bot might provide outdated or inaccurate information.
- This Application need Continues Internet Connection.

## V. PROCESS FLOW DIAGRAM

The flowchart of the system displays how the chatbot performs. Initially, the user message is pre-processed and connectivity to the database is obtained. Then, based upon conditions satisfied, the chatbot process flows and provide response to the user. If the user cannot find the answer for a

query then in such condition chatbot will provide admin’s contact details to the user. Admin can view and answer the corresponding query.

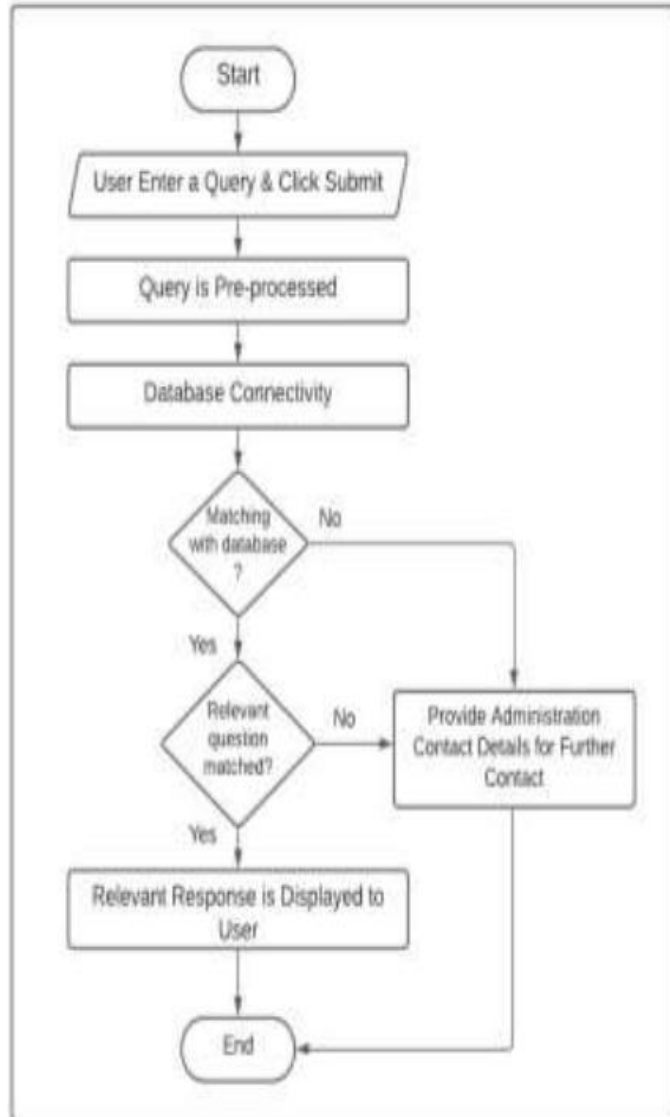


Figure 1: Flowchart of chatbot system

## VI. MODULES

### VI.I Natural Language Processing (NLP) Module

The NLP module is the heart of the chatbot system, enabling it to understand and interpret user inputs in natural language. It identifies the user’s intent, extracts key information like names, dates, or course codes, and manages the context of multi-turn conversations. This module ensures that the chatbot can handle a variety of queries accurately and provide relevant responses. Its adaptability and continuous learning capability allow the chatbot to improve over time, enhancing its ability to understand and serve users.

### VII.II Knowledge Base Module

The knowledge base module stores all essential information such as FAQs, course catalogs, event schedules, admission guidelines, and department contacts. It acts as the chatbot’s reference library, ensuring that it can provide accurate and up-to-date responses to user inquiries. By centralizing information in one place, this module reduces the need for users to search through multiple web pages, offering a quick and efficient way to access critical information.

### VI.III Integration Module

The integration module connects the chatbot to various college systems like student databases, payment gateways, and the website. This allows the chatbot to access and provide real-time data, such as personalized exam schedules, fee details, or application statuses. It also facilitates seamless navigation by linking users directly to relevant web pages or external systems. Through this module, the chatbot can deliver a personalized and integrated user experience, making it a powerful tool for handling complex queries.

## VII. IMPLEMENTATION

Implementation includes all the activities necessary to transition from the old system to the new system. The old system consists of manual operations, which is operated in a very difficult manner from the proposed system. A proper implementation is essential to provide a reliable system to meet the requirements of the organization. Chatbot is a web application. It is incorporated on the website of the college. User can ask queries regarding the college, chatbot will respond to that query asked by the user.

- **User:**

This will enable all the user tasks, when user enters a query regarding college, he will get relevant response from the chatbot.

- **Chatbot:**

Chatbot will take input from the user it finds for relevant answer, when the query matches with output it will be displayed to the user

### VIII. SYSTEM ARCHITECTURE

Figure 2: shows the architecture of the chatbot system for college website.

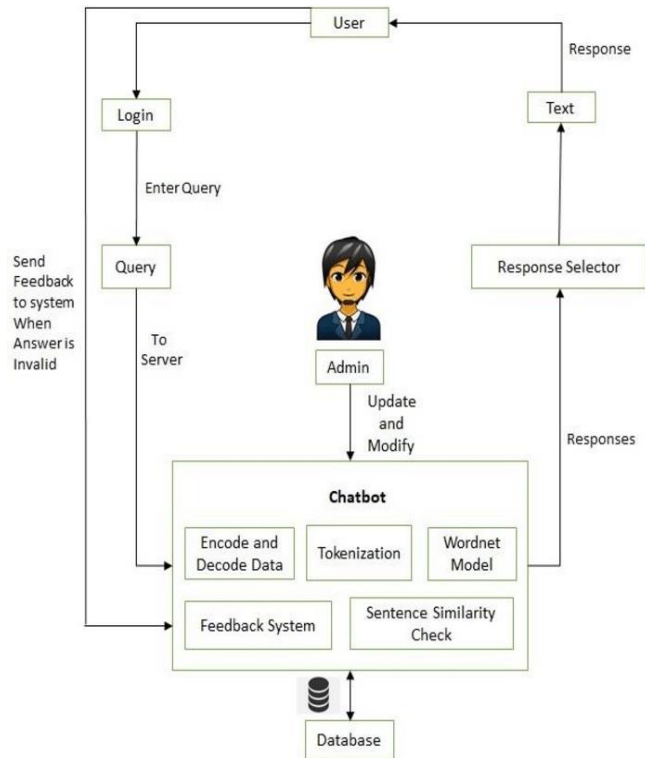


Figure 2: Architecture of the chatbot system

### IX. SAMPLE OUTPUT

#### Chat with

: Hello! How can I assist you today?  
**You:** hi  
 : Assist-bot: Hi there, how can I help?

Type a message...

Send

#### Chat with

: Hello! How can I assist you today?  
**You:** hi  
 : Assist-bot: Hi there, how can I help?  
**You:** courses available  
 : Assist-bot: Our College offers Computer Science and Engineering, Mechanical engineering, Electrical and Electronics engineering, Electronics and Communication Engineering. For further department details [Click here](#)

Type a message...

Send

#### Chat with

: Hello! How can I assist you today?  
**You:** hi  
 : Assist-bot: Hi there, how can I help?  
**You:** college location  
 : Assist-bot: To know about the location of this college [Click here](#)

Type a message...

Send

#### Chat with

: Hello! How can I assist you today?  
**You:** HI  
 : Assist-bot: Hello!  
**You:** college timing  
 : Assist-bot: College is open 9am-4:00pm Monday-Friday!

Type a message...

Send

## X. CONCLUSIONS

The chatbot system is designed to keep students informed about college activities and important updates. It has been thoroughly tested to ensure it meets user needs effectively. With this application, students can access essential documents and information for the admission process anytime and from any location, whether on campus or at home. By simplifying the way students find and retrieve important information, this project enhances their overall experience and supports their educational journey. Ultimately, the chatbot promotes better communication within the college community and provides a convenient, efficient solution for students seeking assistance.

## FUTURE ENHANCEMENT

In the future enhancement of our project, we can include voice recognition features to allow users to interact with the chatbot using voice commands, enhancing accessibility. The users just need to provide voice-based input and the developed bot will provide the text-based output and while giving it, it will provide a voice-based output as well. Enabling students to schedule appointments with academic advisors or administrative staff directly through the chatbot.

Implementing a feature for the chatbot to send important alerts or notifications about campus emergencies, weather closures, or other urgent information. Just by means of adding these features we can improve the functionality to our project.

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