



Admission Enquiry Chatbot

¹Rithika Sharma, ²Threesha, ³Yashaswi C Shetty, ⁴Yashaswi K B, ⁵Prof. Shruthi V S

¹Student, ²Student, ³Student, ⁴Student, ⁵Assistant Professor
Computer Science and Engineering,
Srinivas Institute of Technology, Mangalore

Abstract : In the digital age, educational institutions are increasingly adopting intelligent systems to streamline communication and improve user experience. This paper presents the design and implementation of an AI-driven chatbot tailored for handling admission enquiries in academic institutions. The chatbot leverages natural language processing (NLP) techniques to understand and respond to prospective students' questions related to courses, eligibility criteria, fee structure, important dates, and application procedures. By integrating the chatbot with existing institutional websites or messaging platforms, it ensures 24/7 availability and reduces the workload on administrative staff. The system was developed using a combination of rule-based logic and machine learning models to provide both accurate and contextually relevant responses. Initial testing with real user queries demonstrated a significant improvement in response time and user satisfaction. This project underscores the potential of conversational AI in transforming student engagement and enhancing institutional efficiency during admission seasons.

IndexTerms – Admission Chatbot, Natural Language Processing (NLP), Conversational AI, Educational Technology, Student Enquiry System, Machine Learning, AI in Education Chatbot Integration

I. INTRODUCTION

In today's Artificial Intelligence (AI) is gradually integrating itself into our daily lives by developing and analyzing intelligent software and hardware, referred to as intelligent agents. A chatbot is a common AI system and one of the most basic and often used forms of intelligent Human-Computer Interaction.

This paper presents the development and deployment of an AI-powered chatbot designed specifically for managing admission enquiries in academic settings. The chatbot is capable of understanding user inputs in natural language and delivering relevant information through an intuitive and interactive interface. The system integrates rule-based decision-making with machine learning components to improve its understanding and response quality over time. The proposed solution aims to bridge the communication gap between institutions and applicants, ensuring a smooth and informative admission experience.

II. PROBLEM STATEMENT

The Educational institutions receive a large volume of admission-related enquiries each academic year, often overwhelming administrative staff and leading to delayed or inconsistent responses. These queries typically include questions about course offerings, eligibility criteria, deadlines, application procedures, and fee structures. Traditional methods of handling such enquiries—through phone calls, emails, or in-person visits—are inefficient, labor-intensive, and not scalable during peak admission periods.

There is a clear need for an automated, intelligent system that can handle frequent and repetitive enquiries in real time, provide accurate information, and be accessible at all hours. The lack of such a system can result in poor communication, reduced applicant satisfaction, and potential loss of student interest due to delayed or unclear responses. Therefore, the problem lies in developing a reliable, AI-based chatbot that can assist prospective students by answering admission-related questions efficiently, consistently, and without human intervention.

III. METHODOLOGY

The development of the admission enquiry chatbot began with a thorough requirement analysis to understand the most frequent and relevant questions asked by prospective students. Common enquiry topics included course availability, eligibility criteria, application deadlines, and fee details. Based on this analysis, the chatbot's functionality was defined, and a suitable development platform was selected. Natural language processing (NLP) tools like Dialogflow were used to train the chatbot on recognizing user intents and extracting key information from queries. A set of predefined intents and entities was created to ensure accurate understanding and responses.

The chatbot was designed with a modular architecture, including components for user interaction, intent recognition, and a knowledge base to store institutional data. The knowledge base was populated with verified information from official sources and designed to be easily updated by administrators. After development, the chatbot was integrated with the institution's communication channels, such as the website or messaging apps. It underwent testing with real user queries to assess accuracy, speed, and user satisfaction. Feedback was used to fine-tune the system, making it more reliable and effective in addressing a wide range of admission-related questions. *This section describes the technical realization of the proposed mobile system, which*

combines device management functionality with a modular admission enquiry chatbot. The design follows principles of modularity, scalability, and cross-platform compatibility using React Native and Firebase services.

3.1 Modular Architecture

The mobile application is implemented using a **modular architecture**. Each feature—device management, warranty tracking, and chatbot—is encapsulated in a separate module. These modules share core services such as Firebase Authentication, Firestore Database access, and navigation routes.

This modularization ensures:

- Independent development and testing
- Easier maintenance and upgrades
- Clear separation of concerns between data logic, UI, and user services

3.2 Admission Enquiry Chatbot Module

The chatbot is developed as a **lightweight, embedded module** in the mobile application. It uses rule-based logic to process user queries about admissions, such as eligibility criteria, course fees, and intake dates.

Key components include:

- A **UI component** (Chat Screen) built with React Native, supporting real-time messaging
- A **query handler** that matches user input with predefined keywords stored in Firestore
- An optional logging function to store queries in a `user_queries` collection for future analysis or escalation

This module is accessed from the main menu of the application, allowing seamless integration without disrupting existing workflows.

3.3 Database and Data Handling

Firestore is the unified data source for both device-related and chatbot-related data. The database contains:

- **Devices:** Stores metadata such as brand, model, purchase date, and warranty
- **Warranties:** Contains terms, coverage period, and status
- **FAQ:** A new collection for chatbot responses, where each document includes:
 - question: Reference question
 - keywords: Terms used for matching
 - answer: Static response

This structure supports flexible, scalable query processing by scanning keyword matches rather than relying on exact-text inputs.

3.4 User Interaction Flow

The chatbot module follows a simple yet effective interaction sequence:

1. The user navigates to the "Admission Chatbot" page from the app's dashboard.
2. They input a question (e.g., "What's the fee for BCA?").
3. The input is analyzed by a handler function that scans stored FAQ keywords.
4. The most relevant response is retrieved and displayed.
5. If no match is found, a fallback message prompts the user to rephrase or try a different question.

This mechanism ensures fast response time and zero external API dependency, preserving performance and offline-friendly operation.

3.5 Firebase Integration

The application makes full use of the Firebase platform:

- **Authentication:** Handles secure login and session management
- **Firestore:** Manages all dynamic data (device info, chatbot content, user logs)
- **Cloud Functions (optional):** Can be used for future enhancements like external NLP integration or live-agent escalation

All interactions are asynchronous and optimized for mobile performance.

3.6 Integration Benefits

- No additional backend server is required
- Data consistency is maintained across features
- New modules (e.g., hostel enquiry, scholarship bot) can be added using the same pattern

The chatbot module is a well-integrated, lightweight feature that enhances the functionality of the device management system by adding intelligent user assistance. This demonstrates the potential of combining service-oriented design with user-centric mobile features.

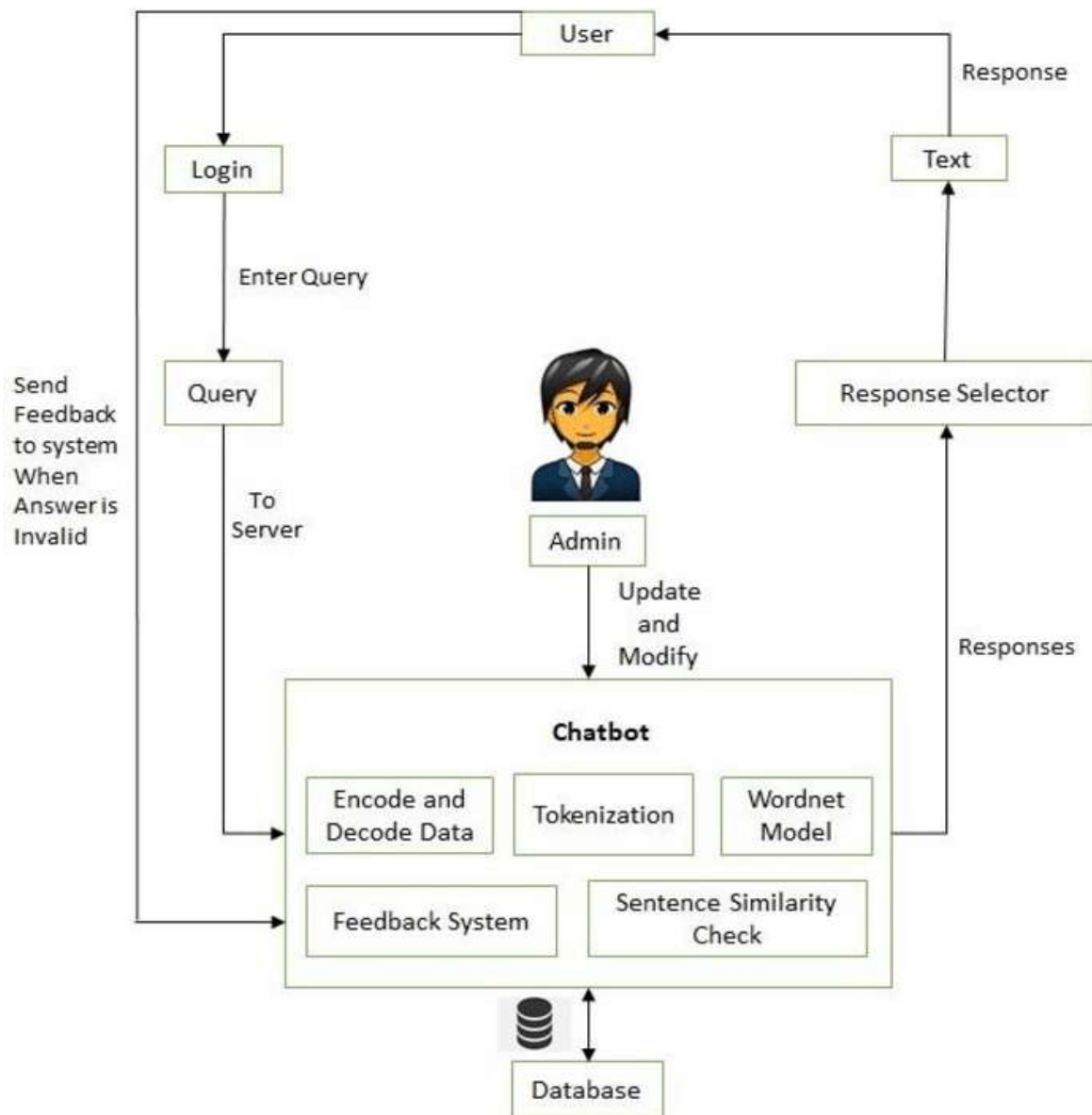


Fig.1 Data Flow Diagram

IV. Experimental Results

The admission enquiry chatbot is a cutting-edge solution designed to provide prospective students with instant and accurate responses to their admission-related queries, the chatbot offers a personalized and user-friendly experience, streamlining the admission process and reducing the workload of admission staff.

By implementing an admission enquiry chatbot, educational institutions can enhance student engagement, improve admission outcomes, and stay ahead of the competition in an increasingly digital landscape. In Admission enquiry chatbot, while the users like students and their parents ask questions related to college then it will give the responses with guidance throughout the admission process. It includes information about number of seat availables in college, Courses offered by college with fees and required documents. If the user ask irrelevant question to chatbot then it will give default response for contact the office with their number. This project mainly focuses on reducing workload of officers and also it improves the admission

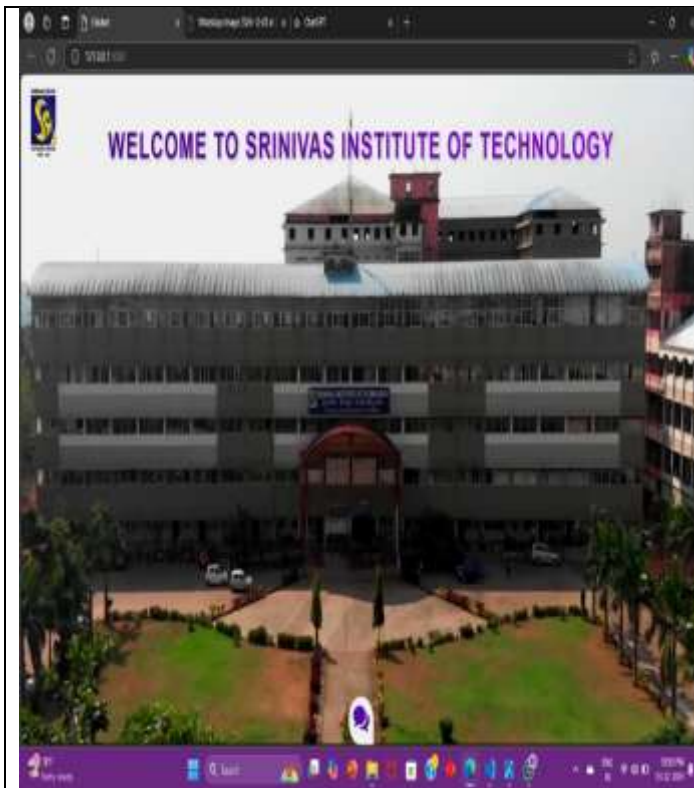


Figure 2.1



Figure 2.2

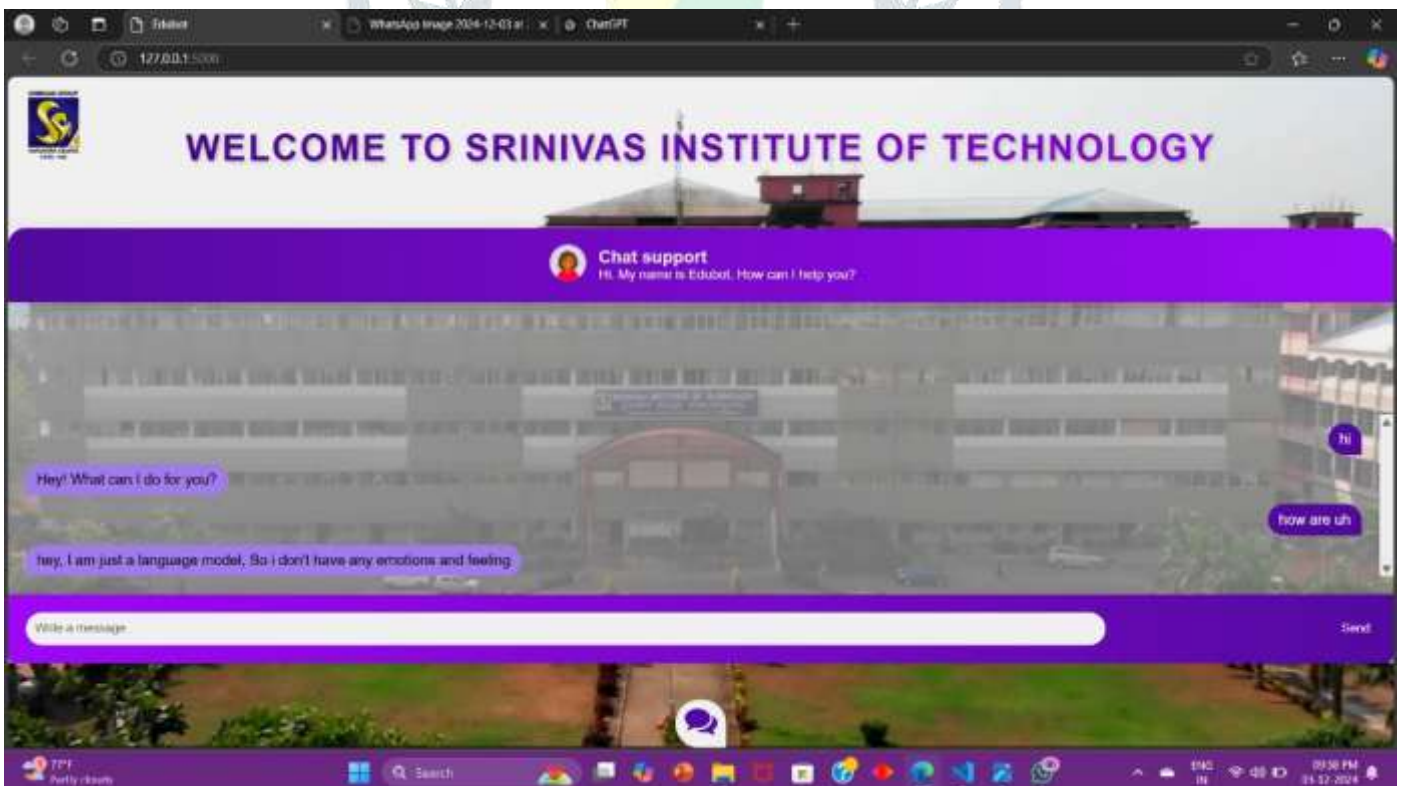


Figure 2.3

V. CONCLUSION

The Admission Enquiry Chatbot project marks a significant step toward digital transformation in the education sector. By leveraging natural language processing and machine learning, the chatbot effectively addresses a wide range of admission-related queries, offering students quick, consistent, and accurate responses around the clock. This not only enhances the user experience but also reduces the operational burden on administrative personnel.

The chatbot acts as a virtual assistant, capable of providing information about course offerings, eligibility criteria, application deadlines, required documents, fee structures, and more. Its intuitive interface allows users to navigate the admission process more confidently, especially those unfamiliar with institutional procedures. Additionally, the chatbot supports improved data management by logging user interactions, which can help institutions identify common concerns and

improve communication strategies. It can also serve as a scalable solution, easily adaptable to increasing enquiry volumes during peak admission seasons. Looking ahead, the chatbot can be further enhanced with features like voice interaction, multilingual support, integration with admission portals for form submission and status tracking, and even AI-driven recommendations based on student interests and qualifications.

In conclusion, this project showcases how AI-driven solutions can improve accessibility, efficiency, and transparency in academic admissions, ultimately contributing to a more inclusive and responsive educational environment.

REFERENCES

- [1] Chatbot Utilizing a Knowledge in Database at the 2016 7th International Conference on Intelligent Systems, Modelling and Simulation by Bayu Setiaji and Ferry Wahyu Wibowo.
- [2] Chatbot, <https://en.wikipedia.org/wiki/Chatbot>. Schantz, Herbert F., The History of OCR, Recognition Technologies Users Association, Manchester Center, Vermont, 1982.
- [3] P. Chenna, T. Rao, et al (2018). HFSS software is used to design a twin inverted L microstrip antenna for sustainable systems. International Journal of Computer-Aided Engineering Technology (IJCAET).
- [4] J. Quintero, an IEEE student member, and R. Asprilla, an IEEE member Proceedings of the 2020 IEEE Thirty-Fifth Central American and Panama Convention: Towards an Efficient Voice-Based Chatbot (concapan xxxv).
- [5] Rao, P.T., and Kumar, P.P. (2015, January). Twin microstrip patch antenna in the form of a staircase. 2015 saw the ICPC (International Conference on Pervasive Computing) (pp. 1-5). The Technical Writer's Handbook by IEEE M. Young. University Science, Mill Valley, California, 1989.
- [6] CB Ram Mohan, A Babu Divi, Abbineni Venkatesh, et al. "Chatbot for University Resource Booking". In: Int. J. Sci. Res. Comput. Sci. Eng. Inf. Technol 5.2 (2019), pp. 113–116.