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## **EDUBOT - AN AI SMART CHATBOT FOR KNOWLEDGE MANAGEMENT SYSTEM**

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### **Abstract**

In the digital era, the integration of artificial intelligence (AI) into education has revolutionized how knowledge is delivered, managed, and accessed. EDUBOT is a smart AI-powered chatbot designed for educational institutions to streamline the dissemination and management of academic knowledge. By leveraging natural language processing (NLP) and machine learning, EDUBOT interacts with users in a human-like manner, providing instant responses to academic queries, guiding users through complex educational resources, and supporting institutional knowledge repositories. This project focuses on the development and implementation of EDUBOT as a 24/7 virtual assistant capable of handling FAQs, providing academic material, and assisting in administrative tasks, thereby improving educational efficiency and access to information.

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## **I. INTRODUCTION**

With the exponential growth in digital content and online learning, managing and accessing educational information efficiently has become a major challenge. Students, teachers, and academic staff often need immediate support for information retrieval, learning material navigation, and administrative guidance. Traditional methods such as manual search or help

desks are time-consuming and resource-intensive. Chatbots, driven by AI, have emerged as effective tools in knowledge management systems. Their ability to

interpret and respond to natural language inputs in real-time makes them ideal for automating routine queries and knowledge sharing. EDUBOT is developed with this vision – to serve as an intelligent virtual assistant within an academic environment.

This project aims to explore the potential of EDUBOT in reducing the workload of educational staff, enhancing student engagement, and making information access seamless. It uses AI techniques like NLP, intent recognition, and machine learning to ensure meaningful, contextual interactions with users, catering to both academic and administrative needs.

## **II. LITERATURE SURVEY**

1. Vijaykumar et al. (2020) – Explored AI-based chatbot models for online tutoring and demonstrated improvements in student retention.
2. Uzzaman & O. Hussain (2018) – Provided a review of chatbot development frameworks and compared rule-based vs. AI-based systems.
3. P. Winkler & W. Söllner (2018) – Investigated trust in chatbots for educational usage and factors influencing user satisfaction.
4. T. Pereira & L. Díaz (2019) – Proposed a personalized chatbot model using user profiles and learning analytics.
5. F. Ammari et al. (2020) – Developed a smart academic advisor chatbot to reduce pressure on student counselors.
6. S. Jain et al. (2018) – Applied NLP for intelligent FAQ retrieval in an academic context using deep learning.
7. B. Shawar & E. Atwell (2007) – Reviewed corpus-based and machine learning approaches in conversational agent training.
8. R. Adamopoulou & L. Moussiades (2020) – Analyzed chatbot that hybrid models yield best results architectures in education, concluding
9. A. Asadi et al. (2019) – Developed a voice-based chatbot for visually impaired students to access educational content.
10. M. McTear (2017) – Discussed voice-enabled conversational agents in e-learning platforms.

11. · · J. Chen et al. (2020) – Built an AI chatbot for collaborative student learning and assessed its performance in MOOCs.
12. K. Arora & S. Sharma (2021) – Surveyed intelligent assistants for Indian educational platforms.
13. S. Srivastava et al. (2019) – Created a university knowledge base chatbot using RASA and integrated it with LMS.
14. S. Park et al. (2021) – Proposed intelligent tutoring systems using chatbots for STEM education.
15. Y. Kasinathan et al. (2020) – Presented a chatbot solution for managing FAQs and circulars in colleges.

### **III.EXISTING SYSTEM**

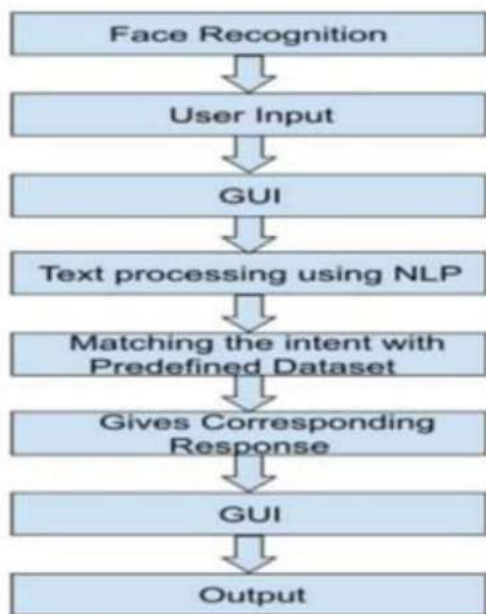
The current knowledge management systems in educational institutions are largely manual or static in nature. Most schools, colleges, and universities use basic tools like website FAQs, email-based helpdesks, and Learning Management Systems (LMS) that offer limited real-time interaction. These systems are typically rule-based, which means they rely on keyword matching and predefined responses, making them unable to understand user intent or context. As a result, when users ask complex or slightly different questions, the system often fails to respond accurately or helpfully. Furthermore, these systems are not adaptive and cannot learn from past interactions, which limits their usefulness over time. Another major limitation of the existing systems is the lack of personalization and interactivity. They do not support multilingual access, real-time assistance, or user-specific recommendations. Most of the processes such as accessing academic materials, understanding syllabus requirements, or resolving administrative doubts still depend heavily on human intervention. There is also no secure user identification like face recognition, which makes the system generic and less secure. Due to these drawbacks, students and faculty face delays in finding the right information, leading to inefficiencies and dissatisfaction.

### **IV.PROPOSED SYSTEM**

The proposed system, EDUBOT – An AI Smart Chatbot for Knowledge Management, is designed to overcome the limitations of the existing systems by leveraging Artificial Intelligence, Natural Language Processing (NLP), and Machine Learning. EDUBOT understands

queries in natural language, analyzes the intent behind the questions, and fetches context-aware responses in real-time. Unlike static systems, it can interpret varied input formats, provide accurate answers, and even suggest relevant academic content or administrative steps. The integration of a graphical user interface (GUI) ensures that users—whether students, teachers, or administrators—can interact with the bot effortlessly across different platforms. In addition, EDUBOT uses face recognition for secure and personalized user authentication, ensuring that users access information relevant to their roles. The chatbot is designed to be dynamic and continuously learn from past conversations to improve its future responses. It connects to a centralized academic knowledge base, enabling it to retrieve and share updated course materials, schedules, and FAQs. With features like multilingual support, voice interaction capability, and 24/7 availability, EDUBOT significantly improves the efficiency of knowledge delivery in educational environments and fosters an intelligent, interactive learning ecosystem.

## **V.SYSTEM ARCHITECTURE**



### **System Architecture Explanation:**

The system architecture of EDUBOT is designed to provide a seamless flow from user authentication to intelligent response generation. It begins with Face Recognition, which verifies the user's identity and ensures secure access. Once authenticated, the user interacts with the

chatbot through a Graphical User Interface (GUI), where they input their queries in natural language. These queries are then processed using Natural Language Processing (NLP) techniques to understand the context and extract meaningful information. The processed text is compared against a Predefined Dataset using an Intent Matching module to identify what the user is trying to ask. Based on the matched intent, the system generates the appropriate response using a Response Generator, which is then displayed back to the user via the GUI. Finally, the system delivers the Output in a human-like and relevant format, creating an efficient, secure, and intelligent knowledge interaction platform.

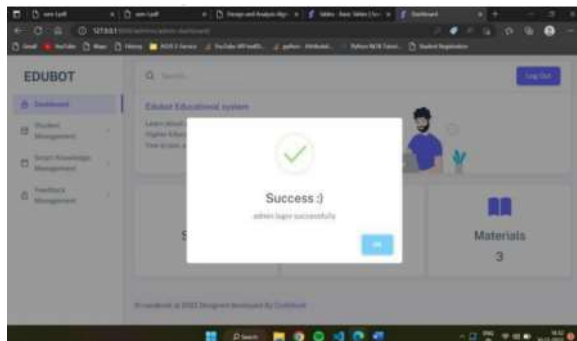
## VI.IMPLEMENTATION



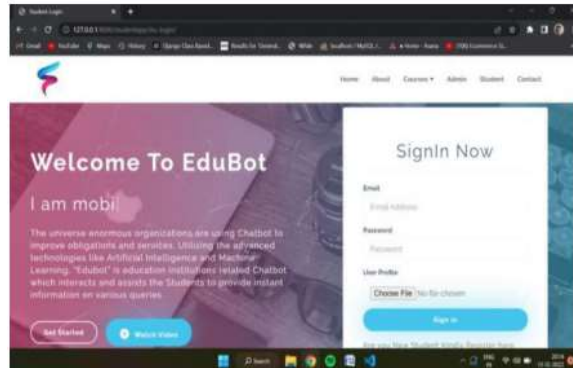
**Fig 6.1 Home**



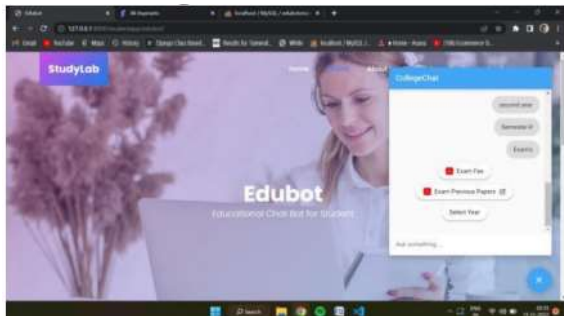
**Fig 6.2 Admin**



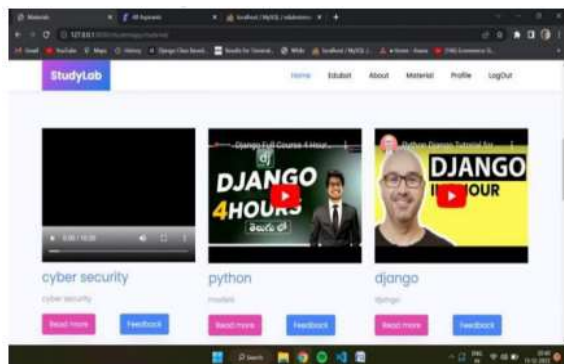
**Fig6.3 User Registraion**



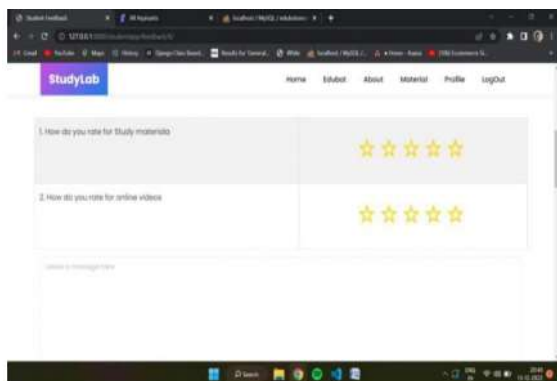
**Fig6.4 User Login**



**Fig6.5 EduBot**



**Fig6.5 Study Lab**



**Fig 6.6 Review**

## **VII.CONCLUSION**

The development of EDUBOT as an AI-powered smart chatbot for knowledge management in educational institutions offers a transformative approach to handling academic and administrative queries. By integrating technologies like face recognition, natural language processing, and intent detection, EDUBOT ensures secure, personalized, and real-time assistance for users. It significantly reduces the workload on staff, enhances student engagement, and improves access to institutional knowledge. This intelligent system brings efficiency, automation, and interactivity into education, making information retrieval faster and more effective.

## **VIII.FUTURE SCOPE**

In the future, EDUBOT can be enhanced with voice recognition, augmented reality (AR) for immersive learning, and integration with IoT-based smart classrooms. It can also include predictive analytics to identify student learning patterns and provide proactive academic recommendations. Expanding support for regional languages, integrating with learning management systems (LMS), and offering mobile app versions will further broaden its usability. Moreover, incorporating emotional AI could allow EDUBOT to respond empathetically, creating a more engaging and supportive virtual learning assistant.

## **IX.REFERENCES**

- Vijaykumar, A., et al. (2020). AI in Education: An Intelligent Chatbot. IJERT.
- Nuruzzaman, M., & Hussain, O. (2018). A Survey on Chatbot Implementation in Customer Service Industry.
- Winkler, P., & Söllner, W. (2018). Unleashing the Potential of Chatbots in Education.
- Pereira, T., & Díaz, L. (2019). An AI Chatbot to Support Personalized Learning.
- Ammari, F., et al. (2020). Smart Academic Advisor Chatbot. IEEE Xplore.
- Jain, S., et al. (2018). NLP for Academic FAQs. IJRTE.
- Shawar, B. A., & Atwell, E. (2007). Chatbots: Are They Really Useful?. Journal of Language Technology.
- Adamopoulou, R., & Moussiades, L. (2020). Overview of Chatbot Technologies. Information.
- Asadi, A., et al. (2019). AI Voice Assistant for Visually Impaired. IJCSE.
- McTear, M. (2017). The Rise of Voice-Based Learning Tools. Springer.

- Chen, J., et al. (2020). AI Collaborative Chatbots in MOOCs. IEEE Access.
- Arora, K., & Sharma, S. (2021). Smart Assistants in Indian Education. IJCA.
- Srivastava, S., et al. (2019). University FAQ Chatbot with RASA. IRJET.
- Park, S., et al. (2021). AI Tutors for STEM Education. IJCSIT.
- Kasinathan, Y., et al. (2020). Chatbot for Campus FAQs. JETIR.

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