CLARIFICATION ON PROJECT TEAM ROLES

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Group No. 3

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A

SYNOPSIS REPORT

On

"AI-Powered Departmental Assistant- Bandhu"

Submitted to

Autonomous Institute,

Affiliated to The Rashtrasant Tukdoji Maharaj Nagpur University

Department of Emerging Technologies

Bachelor of Technology (B. Tech)

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ABSTRACT

An AI-powered assistant, or chatbot, is a virtual helper that uses artificial intelligence to interact with users. It can answer questions, provide information, and even perform tasks. With its ability to understand natural language, it feels like chatting with a real person. Chatbots are used in various applications, from customer service to personal assistants. They can save time and resources by automating repetitive tasks and providing instant support. Their efficiency and availability make them valuable tools in today's fast-paced world. As technology advances, chatbots continue to improve, becoming more intelligent and versatile. Whether it's scheduling appointments, ordering food, or getting recommendations, chatbots are always ready to assist.

This project is focusing on creating a chatbot to be used by students to get their queries responded easily from the college website. The College Enquiry Chatbot has the capacity to make friendly conversations; respond the course and faculty details; give the link for the academic calendar; answer the frequently asked questions;

The future work include training the chatbot with more varied data; increasing the scope of the chatbot by adding a speech recognition feature so that users can speak to get responses

INTRODUCTION

In our increasingly digital world, AI-powered assistants, often referred to as chatbots, have become integral parts of our daily lives. These virtual helpers harness the power of artificial intelligence to interact with users, providing assistance and information in a conversational manner. Whether it's answering questions, scheduling appointments, or offering recommendations, chatbots offer a convenient and accessible way to access services and support. With their ability to understand natural language and adapt to user needs, they simulate human-like interactions, making them indispensable tools for businesses and individuals alike. As technology continues to advance, chatbots are evolving to become even more intelligent and capable, promising a future where assistance is just a conversation away. This project is focusing on creating a chatbot to be used by students to get their queries responded easily from the college website. The College Enquiry Chatbot has the capacity to make friendly conversations; respond the course and faculty details; give the link for the academic calendar; answer the frequently asked questions;

The future work include training the chatbot with more varied data; increasing the scope of the chatbot by adding a speech recognition feature so that users can speak to get responses;

Frequently we tend to tend to pay our time interrelate with numerous chatterboxes on the net, mostly targeted at such functions or just amusement. The chatbots have embedded information that helps them acknowledge the user's question and provide an answer to it. The college enquiry chatbot project is meant exploitation algorithms that interpret user queries and understand user's message. The college enquiry chatbot project is developed exploitation algorithms that analyze user queries and understand user message. This method is a web application that provides answers to the student's question. Students would really like simply question through the bot. The program analyzes the user's query and answers. Then the bot responds to the query, as if the real person were asking it. The program responds to the students' question with the help of algorithms

AIM & OBJECTIVES OF PROJECT

Aim :- AI – powered Departmental Information Assistant (BANDHU)

Objectives:-

- **Streamline Communication:** Facilitate seamless communication within the department by serving as a centralized platform for inquiries, updates, and notifications, thereby fostering collaboration and transparency.

- **Enhance Efficiency:** The primary objective of the AI-powered Departmental Information Assistant is to improve the efficiency of departmental operations by automating repetitive tasks and providing quick access to relevant information.

- **Improve Decision-Making:** Provide timely and accurate information to departmental stakeholders, enabling informed decision-making processes based on real-time data and insights.

- **Support Organizational Goals:** Align the objectives of the AI-powered Departmental Information Assistant with the broader goals and objectives of the organization, contributing to its overall success and competitiveness.

- **User-Friendly Interface:** Develop an intuitive and user-friendly interface for the chatbot, ensuring ease of use for students, faculty, and staff from various colleges.

- **Information Retrieval:** Train the chatbot to efficiently retrieve relevant information such as course schedules, campus events, academic resources, and administrative procedures from each participating college.

- **24/7 Availability:** Ensure round-the-clock availability of the chatbot to accommodate the diverse schedules of students, faculty, and staff across different time zones.

- **Personalized Assistance:** Incorporate machine learning algorithms to provide personalized assistance to users based on their preferences, academic history, and interaction patterns.

LITERATURE REVIEW

A chatbot is a software that is used to interact between a computer and a human in natural language like humans chat.

Chatbots chat with the user in a conversation in place of a human and reply to the user. The goal of this report on chatbot was to

resemble a human being in the way they interact, trying to make the user think he is chatting with another human being. The chat bot

application helps the students to access the university related information from anywhere with internet connection. This system reduces work of college administration providing information to students and also reduces the workload on the staff to answer all the

queries of the students.

"Chat-Bot For College Management System Using A.I", International Research Journal of Engineering and Technology (IRJET), Vol. 04 Issue.11, pp.2395-0072, 2017.[1].

This systematic review explores the application of chatbots in education.

It investigates areas where chatbots have been used, their pedagogical roles, mentoring purposes, and potential for personalizing education.

The study identifies research challenges related to chatbot evaluations, mentoring students, and leveraging adaptation capabilities

"AI and Web-Based Human-Like Interactive University Chatbot (UNIBOT)",In theProceedings of the Third International Conference on Electronics Communication and Aerospace Technology[ICECA 2019] [2].

This review focuses on agent-based chatbot technology solutions.

It examines application domains, end-users, requirements, objectives, technology readiness levels, designs, strengths, limitations, and future challenges[2].

"Chatbot Using A Knowledge in Database- Human-to-Machine Conversation Modeling", In the Proceedings of the 2016 International Conference on Intelligent Systems, Modelling and Simulation, pp.2166-0670, 2016.[3].

This survey highlights recent advances in chatbots, emphasizing the use of artificial intelligence and natural language processing.

It discusses challenges and limitations in current work and provides recommendations fo

"Chatbot for College Website", International Journal of Computing and Technology, Vol.5 Issue.6, pp.2348-6090,[4].

2018.

This article introduces using Bing Chatbot to expedite literature reviews.

It outlines steps, from creating a literature review matrix to asking nuanced questions, to enhance the review process

" Designing a Chat-bot that Simulates a Historical Figure", Faculty of Automatic Control and Computers university of Bucharest, IEEE 978-0-7695-4980-2013[5].

This systematic review identifies advantages and challenges associated with integrating chatbots in education.

Critical gaps in existing research are highlighted, calling for further investigation

"Design of Chatbot System for Student Counselling", International Journal of New Innovations in Engineering and Technology, Vol.13, Issue.3, pp.2319-6319,2020.[6].

PROPOSED WORK

1. Requirement Analysis:

- Conduct an in-depth analysis of the communication needs within the department, including inquiries from students, faculty, and staff.
- Identify common queries, recurring issues, and information gaps that the chatbot can address effectively.

2. Platform Selection:

- Evaluate available chatbot development platforms and frameworks to determine the most suitable option based on requirements, scalability, customization capabilities, and integration with existing systems.
- Consider factors such as natural language processing (NLP) capabilities, multi-channel support, and ease of deployment.

3. Chatbot Design and Development:

- Design conversational flows and user interfaces that align with the department's branding guidelines and user experience best practices.
- Develop and train the chatbot's NLP models to accurately understand and respond to user queries, considering the department-specific terminology and context.
- Implement features such as FAQ retrieval, appointment scheduling, resource lookup, event notifications, and feedback collection.

4. Testing and Quality Assurance:

- Conduct thorough testing of the chatbot across various devices, browsers, and communication channels to ensure compatibility and functionality consistency.
- Perform user acceptance testing (UAT) with representatives from different user groups to validate the chatbot's effectiveness and usability.
- Address any bugs, errors, or usability issues identified during testing iterations.

5. Deployment and Training:

- Deploy the chatbot on the department's website, intranet, messaging platforms, and other relevant channels.
- Provide training sessions and documentation for departmental staff responsible for managing and maintaining the chatbot.
- Educate end-users (students, faculty, and staff) on how to interact with the chatbot and leverage its capabilities effectively

7. Evaluation and Reporting:

- Regularly evaluate the impact of the chatbot on departmental communication effectiveness, user satisfaction, and operational efficiency.

- Prepare reports summarizing key performance indicators (KPIs), insights gained, and recommendations for further enhancement or expansion of the chatbot project. By following this proposed work plan, the departmental chatbot project aims to streamline communication processes, enhance user experience, and empower stakeholders with instant
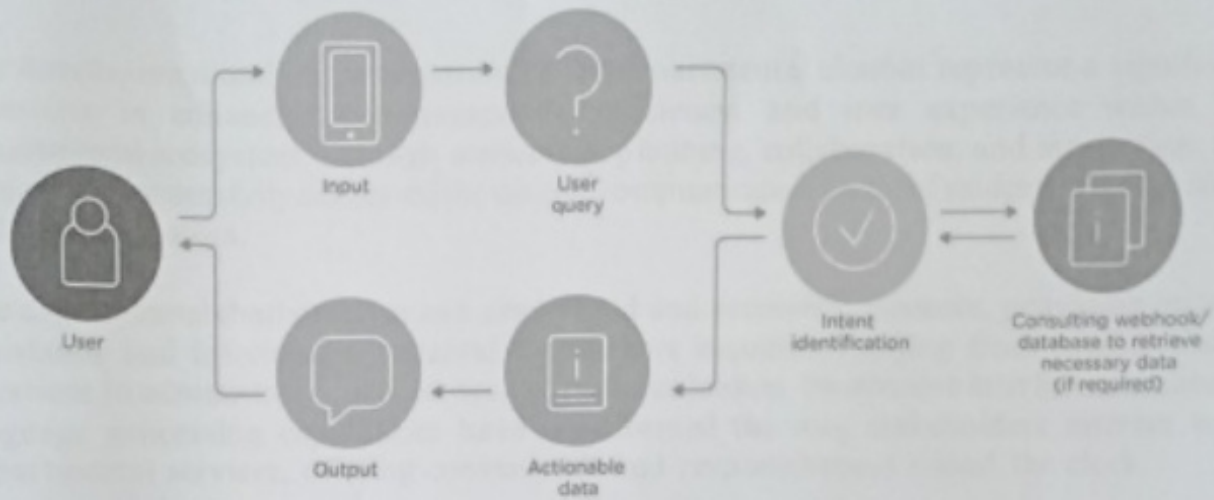
RESEARCH METHODOLOGY

The proposed chatbot system is a web application which gives reply to the question of the user. This system is utilized for talking. A chatbot project is built using artificial algorithms i.e. Naive Bayes' algorithm that analyse user requests and understand the user's message.

The system uses Natural Language Processing (NLP) and built-in artificial intelligence to answer the queries asked by the user. For the chatbot development, we have used Python programming language and Chatterbot library. It makes it easy to generate automated responses to a user's input with the help of a machine learning algorithm to produce different types of responses.

Students just have to query through the bot which is used for chatting purpose. Chatbot will reply to the query with the help of artificial intelligence. The proposed system will reduce the administration burden and will be able to provide necessary details to students and Faulty online.

Students will get their queries resolved without any hassle to reach out the college administration office. The System will be available for 24/7 to all students and Faculties

Chatbot Responding System:

NLP Processing for Query Analysis : When a user submitted the query to the system, NLP is applied and sense of the query is detected. Natural Language Processing (NLP) allows chatbot to understand user's messages and respond appropriately.

Search Questions in database: Once the query is submitted, furthermore, we have to search the exact answer of the query in our pre-trained database. As the query description can change from person to person. The same question can be asked in different ways from multiple users. One user asks a question so simply and clearly, while another user may ask the same question with different format. So it is necessary to find out what is the correct solution of a submitted query.

Answer the Queries: As described above, whenever user submits a complaint, then it is checked that is there such question registered in database. If the answer is matched, then that is sent to that User. If the answer of submitted query is not found in the database, then such questions are answered by admin person.

User

Input

User query

Intent identification

Consulting webhook/ database to retrieve necessary data (if required)

Actionable data

Output

CONCLUSION

The development and implementation of the departmental chatbot represent a significant milestone in enhancing communication, efficiency, and user experience within the departmental ecosystem. Through meticulous planning, collaboration, and innovation, the project has successfully addressed the diverse communication needs of students, faculty, staff, and administrators.

The departmental chatbot serves as a centralized and accessible resource, providing instant assistance and information retrieval for various inquiries, ranging from course-related questions to administrative procedures and resource lookup. Its intuitive interface and natural language processing capabilities have transformed the way stakeholders interact with departmental services, offering convenience and responsiveness round the clock.

Moreover, the integration of the chatbot with existing departmental systems and platforms has facilitated seamless access to up-to-date information and services, while maintaining data security and privacy standards. By leveraging machine learning algorithms and user feedback mechanisms, the chatbot continuously evolves to adapt to changing user needs and preferences, ensuring relevance and effectiveness over time.

The project's success is further exemplified by its positive impact on communication efficiency, user satisfaction, and operational productivity within the department. Stakeholders have embraced the chatbot as a valuable tool for simplifying tasks, reducing response times, and fostering a more connected and informed community. foundation for future enhancements and expansion of its capabilities.

In conclusion, the departmental chatbot project stands as a testament to the department's commitment to leveraging technology for the benefit of its stakeholders, ultimately contributing to a more efficient, responsive, and collaborative environment conducive to academic and operational excellence.

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