

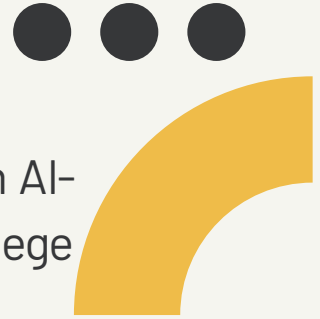
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AI – Powered Departmental Information Assistant (BANDHU)



Introduction

In this introduction, we'll explore the key features and benefits of an AI-Powered Departmental Information Assistant, its impact on the College & Department will be beneficial for students, parents, teaching and non-teaching staff as well. Presently, there are various chatbots available for the students. But our "Bandhu" is designed for the students to ask Department related question. For this system a algorithm is developed to deliver an appropriate response to the user corresponding to their entered message





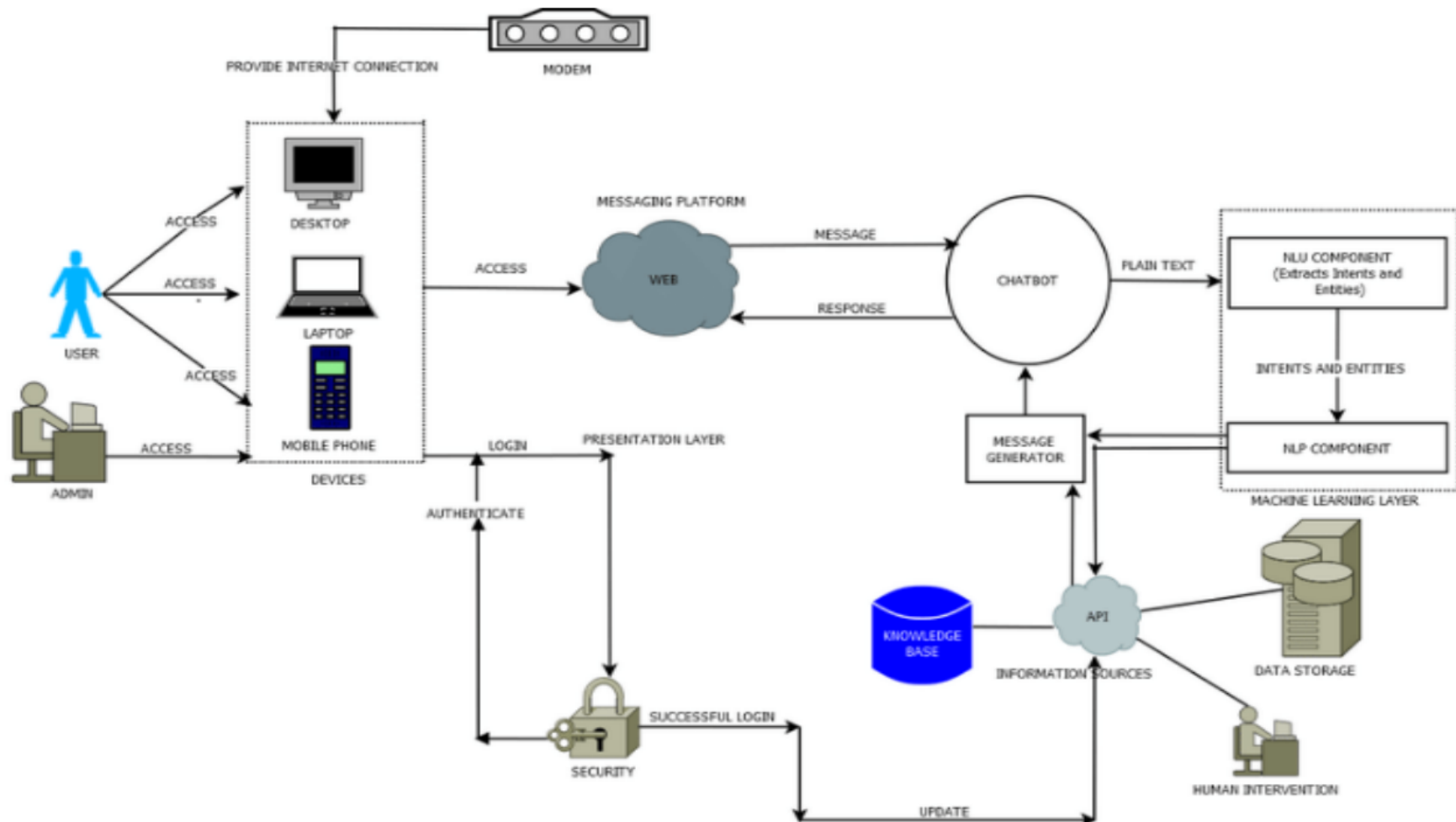
Problem Statement

- College students often need information regarding college such as timetable, upcoming events of college, about faculties, exam timetables, new assignments and projects with their deadline many more.
- The traditional way such as making phone calls, or sending emails is inconvenient and time-consuming since you have to wait for a long time before you get an answer from the other side.
- So, a solution such as a Chatbot is the easiest system to access for any user and is available 24 x 7.
- Anyone, Anywhere, Anytime without any problem can make use of internet connection and mobile device or other laptop devices to solve doubts.

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 Faculty 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



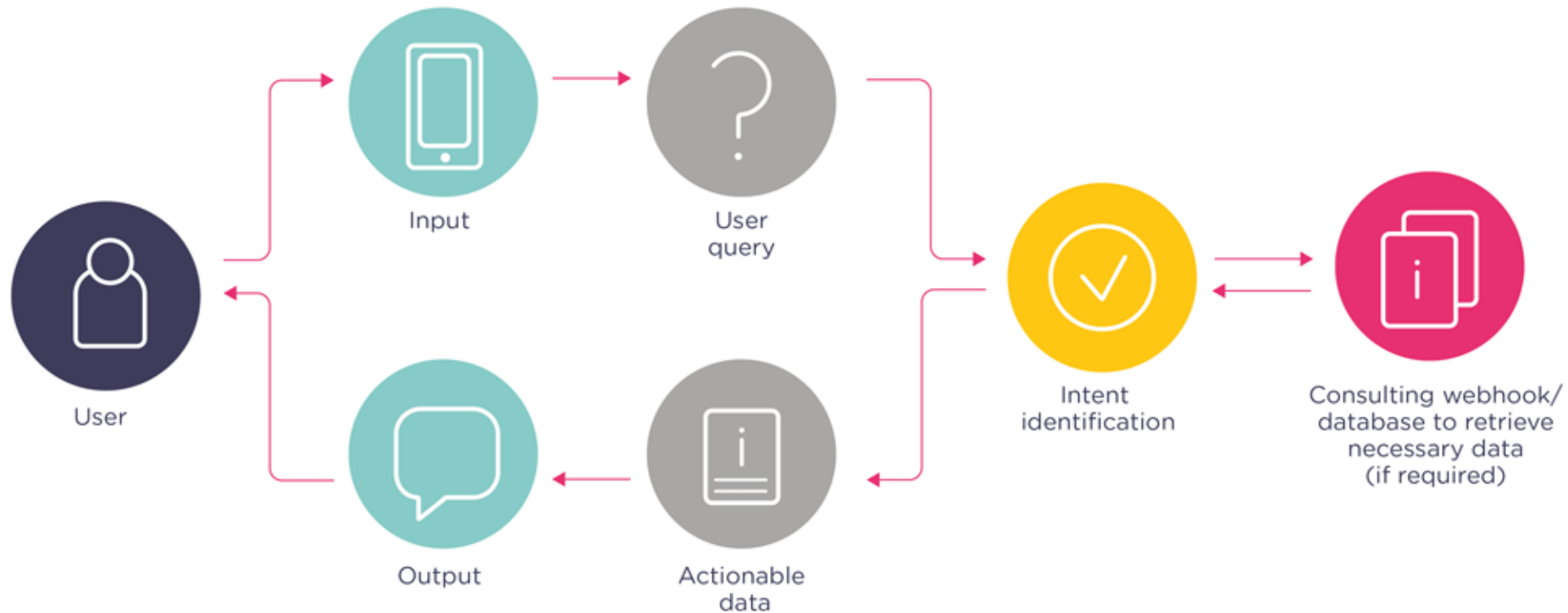
User Login: User just needs to submit his/her queries regarding the college to the bot. User can be student, teacher

2. Chatbot Responding System:

2.1 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.

2.2 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.

2.3 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.



Expected Outcome :

Productivity: By automating routine inquiries and providing instant access to information, the AI-powered assistant can help employees complete tasks more efficiently and effectively. This can lead to increased productivity and better outcomes for the department.

Enhanced Decision Making: The AI assistant can analyze data and provide insights to support decision-making processes within the department. By presenting relevant information in a timely manner, the assistant can help managers and team leaders make informed decisions.

24/7 Availability: Unlike human assistants who may have limited availability, an AI-powered assistant can be accessible 24/7, allowing employees to seek assistance and information at any time. This round-the-clock availability can accommodate different work schedules and time zones.

Scalability: AI-powered assistants can scale to handle large volumes of inquiries and interactions simultaneously, making them suitable for departments of all sizes. Whether it's assisting a small team or an entire department, the AI assistant can efficiently manage the workload.

Consistency and Accuracy: The AI assistant can provide consistent and accurate information to all employees, ensuring that everyone has access to the same knowledge base. This can help prevent misunderstandings and discrepancies within the department.

Task Automation: In addition to providing information, the AI assistant can automate routine tasks such as scheduling meetings, setting reminders, and updating calendars. This can free up employees' time to focus on more strategic and value-added activities.

Training and Onboarding Support: The AI assistant can assist new employees during the onboarding process by providing guidance, answering questions, and directing them to relevant resources. This can help new hires acclimate to their roles more quickly and effectively.

Feedback and Improvement: By analyzing interactions and user feedback, the AI assistant can continuously improve its performance and capabilities over time. This iterative process ensures that the assistant remains relevant and valuable to the department.

Overall, the expected outcome of an AI-powered department information assistant is to enhance efficiency, productivity, and decision-making within the organization, ultimately contributing to the department's success and effectiveness.



Issues & Challenges :

Implementing an AI-powered department information assistant project may encounter various issues and challenges, including:

- **Data Quality and Integration:** Ensuring that the AI assistant has access to accurate and up-to-date information requires integrating data from multiple sources within the department. However, data may be scattered across different systems, in various formats, and may suffer from inconsistencies or inaccuracies.
- **Natural Language Understanding (NLU):** Developing NLU capabilities that allow the AI assistant to accurately interpret and respond to natural language queries is challenging. Understanding the nuances, context, and intent behind user inquiries requires sophisticated AI algorithms and extensive training data.
- **Being Fair to Everyone:** We have to make sure the AI doesn't treat people unfairly or show biases. It should treat everyone the same way.
- **Making it Work for Everyone:** Different departments might need different things from the AI. We need to make sure it can be customized to fit each department's needs.



- **Getting the Right Information:** Making sure the AI assistant has the correct and up-to-date information can be tricky. Sometimes, the data might be scattered in different places or might not be accurate.
- **Understanding What People Say:** Teaching the AI to understand what people mean when they ask questions can be hard. It needs to be able to understand different ways people ask things.
- **Keeping Things Up to Date:** The information the AI uses needs to be kept fresh. New things might happen in the department, so the AI needs to know about them.
- **Keeping Secrets Safe:** The AI might deal with private or sensitive information, so we need to make sure it doesn't share anything it shouldn't.



Research Papers Related to Project

1. "Design of Chatbot System for College Website" – International Journal of Computer Sciences and Engineering
2. "CHATBOT FOR COLLEGE ENQUIRY" – International Journal of Creative Research Thoughts(IJCRT)
3. "IMPLEMENTING A COLLEGE ENQUIRY CHATBOT" – California State University, Sacramento
4. "INTELLIGENT CHATBOT FOR COLLEGE ENQUIRY SYSTEM" – International Research Journal of Engineering and Technology (IRJET)
5. "AI College Enquiry Chatbot System" – Journal of Emerging Technologies and Innovative Research (JETIR)
6. "COLLEGE ENQUIRY BOT" – GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES



Thank you!