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Chatra Paryesana (Student Enquiry System)

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Abstract: ***In today's technological era, chatbots not only mimic human conversation but can also perform sophisticated jobs like purchasing theatre tickets. RASA is a free and open-source programme that may be used to run various versions of the NLU and DIET models. It has the capacity for natural language processing, reinforcement learning, and API/database integration. nervous system. This project incorporates a number of rasa's fundamental principles to allow for user interaction in its execution of tasks. Using the Rasa platform, we developed a chatbot specifically for universities. You can use this chatbot to obtain student information, view grades, and verify attendance. By integrating with Telegram, users no longer need to download and run a separate programme to use this bot. This method is far more interesting than the standard web page.***
Keywords: Natural Language Processing, Chartbot, Enquiry, Artificial Intelligence

I. INTRODUCTION

In the current era, when digital and mobiletechnology have so thoroughly permeated every aspect of human life. Games, maps, e-mail, chat, photography, and many others are just some of the many uses for mobile technology today. Even if everything is done on mobile devices now, we still have to go to university websites to get the info we need. It stubbornly persists in using an antiquated method.

To get around this problem and access the information in the database, a website with a polite chatbot is developed for educational institutions. The user can have a conversation with a chatbot embedded in the site, which will then provide the necessary data. Attendance, personal details, and grades are just some of the data it provides. The administrators need to compile data relevant to the educational institutions in an Excel document. This Excel document is compatible with database information since it follows a standard format. Additionally, an Excel-to-database Python script has been provided. This new information will be used by the chatbot.

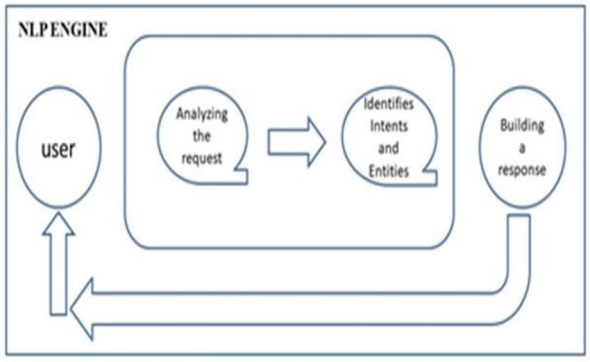


Fig.1 NLP Engine

Artificial intelligence methods like Natural Language Processing (NLP) and Audio Analysis are used by chatbots (sometimes called talkbots) to mimic human conversations in writing and speech. Thanks to AI, this chat bot can pass for human communication, making for a more pleasant human-machine interface.[5]

All data pertaining to universities and their students is archived here. The chat-bot reads the user's question, determines its Intents and Entity, and then searches the system for data relevant to that question. It then uses that information to construct a response, which it then sends to the user. This method has the potential to be quick, precise, consistent, and dependable, while still being adaptable enough to embrace any changes in the future. We have enabled speech recognition so that users can ask questions whenever it is most convenient for them to do so. Students, parents, instructors, and administrators can all access the college's data, and everyone should be able to see their own information after logging in.

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The Chat-bot was developed for use with the college administration system, a web-based programme that serves as both the college's public- facing website and an internal portal for students and staff. This chatbot has a simple interface that facilitates interaction between the user and the software. This bot is flexible enough to modify its behaviour in response to a user's question, and its features can be completely personalised. This chat-bot is adaptable enough to help users who use the web app via desktop, smartphone, or tablet, regardless of the device or operating system they use. By recognising the user's message or voice, this chat-bot can comprehend the context and provide solutions, allowing it to connect with the user on their own terms. This chatbot analyses user data, questions, and responses in order to tailor its service to the individual user.

II. LITERATURE REVIEW

According to the work of Polignano et al., Health Assistant Bot is a conversational AI that can learn a patient's symptomatology through talk, refer them to specialists, and monitor their medications and other health data. With the bot, the consumer may have a conversation in natural language to learn about their health, describe their symptoms, find a physician, and discuss potential solutions. Using AI methods for side effect management and, by extension, diagnosis, is a novel part of their procedure. A recommendation algorithm then analyses the data to find the nearest specialist who can treat the client's problem based on the client's location and medical history. Throughout the course of the brainstorm, we put this HealthAssistantBot through its paces both offline and online. In the first, it was utilised to determine if any hidden parts were there, and in the second, it analysed information from 102 people who had frequent conversations with the expert. These results confirmed the system's viability as a tool for improving people's health. The major shortcoming of this bot is that it does not provide in-depth explanations of diseases and symptoms, nor does it report the possibility that a certain ailment can produce a given symptom. Computer-based illness symptom prediction is difficult and error-prone due to a lack of descriptive data.[1]

Patel et al. have created UNIBOT, an AI-powered and web-based interactive university chat-bot, which places a premium on client involvement and is accessible from anywhere. With very minor tweaks, the Chat-bot might be incorporated into any scholarly website. The database has a wealth of data that may be linked back to individual students or the University as a whole. The Chat-bot is available to anyone with access to the University's website. This effort makes use of ML and AI technologies. The PHP programming language is widely used in the chat-bot development industry. The user inputs a query on a subject covered in college, and the Bot returns an answer based on a comparison of the two. The interface is very similar to that of a chat app. For present and future college students, this is a great way to save time and energy when researching topics like tuition rates, registration dates, and more. It has been argued that UNIBOT does not provide a sufficient amount of information on universities. The chat-bot can be improved by using Natural Language Processing(NLP).[2]

Srivastava et al. found that "automated clinical chat-bots" built with natural language processing and other forms of innovation can cut costs in healthcare while giving patients easier access to the information they need. This bot was developed to promote communication regarding clinical queries and concerns, with the ultimate goal of providing a customised diagnosis based on the patient's evaluated look and profile. The average accuracy for spotting user symptoms is 65%. Using only these individual pain generators, a review of 65% and accuracy of 71% were shown to be connected with the right manifestations. The final response from the chatbot confirmed the suspected diagnosis, allowing further treatment. This indicates the potential for a clinical chat-bot to offer patients with fairly accurate findings utilising a simple symptom examination and a conversational methodology, and it suggests that a robust communication language bot could be appropriate. Because of this robot's overall success, it's possible that additional constantly robotized clinical items will also find commercial success in the near future. Due to its Rank-based algorithmic foundation, the current version of Medibot has some shortcomings that could be addressed by a future upgrade.[3]

Dharani et al. presented a chat-bot that can efficiently answer questions about public transport from users all around the world thanks to its interactive nature. It's not uncommon for folks to experience a case of environmental disorientation after visiting multiple locales. This robot is acting as a rescuer at the moment. When it comes to AI- enabled, two-way communication between humans and machines, chatbots are typically held up as the most promising technology. It's forum moderation software that makes use of Natural Language Processing (NLP) and Deep Learning techniques. It's a GUI that connects you to a real-life expert.

With just a few inquiries, an AI-powered chatbot can confirm the user's position and destination. The system evaluates the user's request and retrieves the appropriate information from the repository. This chatbot makes use of deep learning methods to correctly analyse user queries and stay away from making any assumptions. The chatbot determines the most appropriate response after analysing the user's intent. The user is subsequently given contact information for all viable transit options, ensuring a trouble-free trip. This Bot was developed using the Keras library and the Tkinter GUI. The addition of audio chat would significantly increase the utility of this programme.[4]

The term "question answering" (QA) refers to a subset of information retrieval systems that aims to provide actual responses to user
questions rather than just a list of related documents. The QA system picks the top responses based on language-related data gathered by NLP. Natural Language Dialogue Systems (NLDS) are an adaptable and user-friendly substitute for conventional information repositories. Quality assurance (QA) system with semantic enhancement and pattern-matching chatbot technology developed as part of an industry project (FRASI) [16]. The suggested procedure simplifies the implementation of two chat-bot systems. The first is an ontology, which serves two purposes: it is used to actively construct answers through a deduction process about the domain, and it is used to automatically populate the chat-bots' KB with sentences that can be derived from the ontology, describing properties and relations between concepts involved in the dialogue. In the second stage, user input sentences are preprocessed to reduce their length and make them suitable for use with existing chat-bot queries. The goal is to provide useful information that will aid consumers in narrowing their search for thespecific solutions they require. It was decided to construct the QA system using chatbot technology that uses pattern matching.

This study provides a method for selectingthe most pertinent information from biographies forthe purpose of developing a chatbot for use in middle school CSCL environments. In this paper, we demonstrate how to teach a chatbot to impersonate a historical figure. The "input" is asimple text or web page about the historical figure, and the "output" is a conversational agent that has been trained to answer any question about the person's life. The goal is not to act like a certain person, but rather to provide a broad solution to the problem at hand.

Chat-bots are designed to bridge the gap between human and digital interaction. Computers can learn to recognise sentences and make independent decisions in response to questions from administrators. MySQL is our database of choice, and an Indonesian chat format is being used for this project's communication. During the process of linking the chat client and the data store, it is possible that a statement and its appropriate response will not be defined. As a result, encoding expertise and employing SQL for pattern matching are prerequisites. Information modelled from conversations would be put through their paces in a set of test scenarios. The accuracy of chatbot conversations might then be checked against this template. Since it has never been modelled before, doing so will add fresh data to the archive. If the sentences in the database do not conform to the provided sentences, they will be rewritten.

III. PROPOSED SYSTEM

Rasa is an AI chatbot developed in Pythonusing Natural Language Understanding (NLU), as seen in Figure 2. Artificial intelligence (AI) can be used to create NLU-capable chatbots in Rasa. The model may be trained, and the user can add new processes, to further customise the system. By determining the user's intent and then extracting that item as structured data, Rasa NLU is an open-source NLP solution that aids chatbots in understanding their human operators. [9]

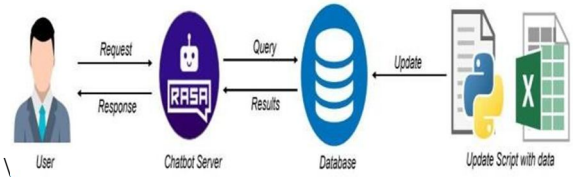


Fig.2 Proposed System Architecture

According to the Fig.2 , The Proposed Systemconsists of two phases

1) Public User Portal
2) Student/Staff Portal

During the public portal stage, visitors to the college's website can pose any questions they may have about the institution to the chat-bot embedded there. College-related topics such as schedules, departments, transportation, placementopportunities, and events are fair game. The Bot employs Rasa NLU to interpret the user's query, extracting the intents and entities, doing database queries, retrieving the desired data, and finally responding to the user through an intuitive graphical user interface as if it were a real person. Anyone with internet access can visit the college's website and use the built-in chat function to ask the college's chatbot any questions they may have.[10][11][12]

The Student/Staff Portal is a section of the university's website that can only be accessed with the appropriate credentials. Students can see their schedule, attendance records, and grades online by logging in with their username and password.

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Staff members can log in with their own credentials to make changes to students' profiles, including attendance, grades, and class schedules, as well as run reports.[13]

IV. RESULTS

The effectiveness of the chatbot's responses was evaluated, as was the speed with which the intranet portal met the user's needs. The investigation revealed that the time needed to respond is proportional to the number of lines in the chatbot's response. According to the chatbot's performance representation [Fig. 3], the time it takes to respond grows in proportion to the number of lines of response.

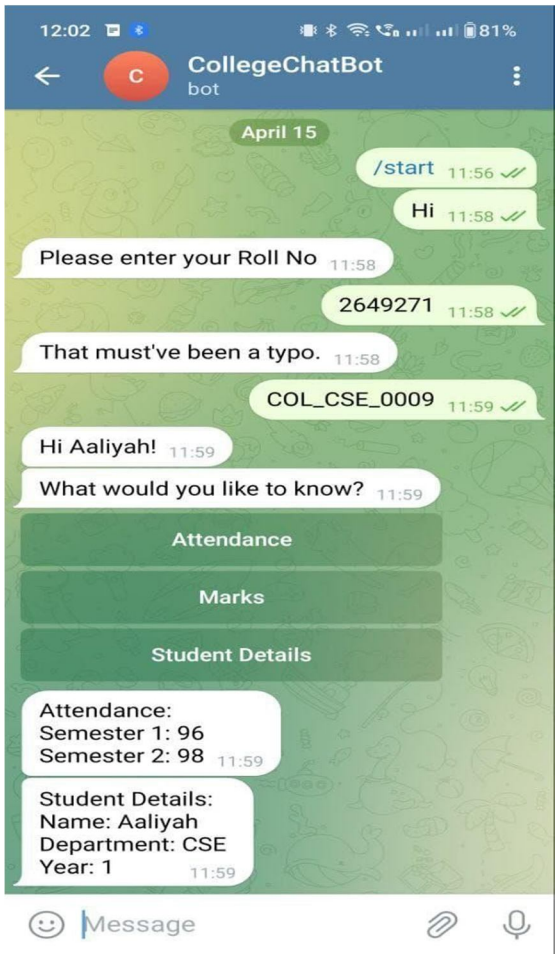


Fig.3 Performance of Chatbot

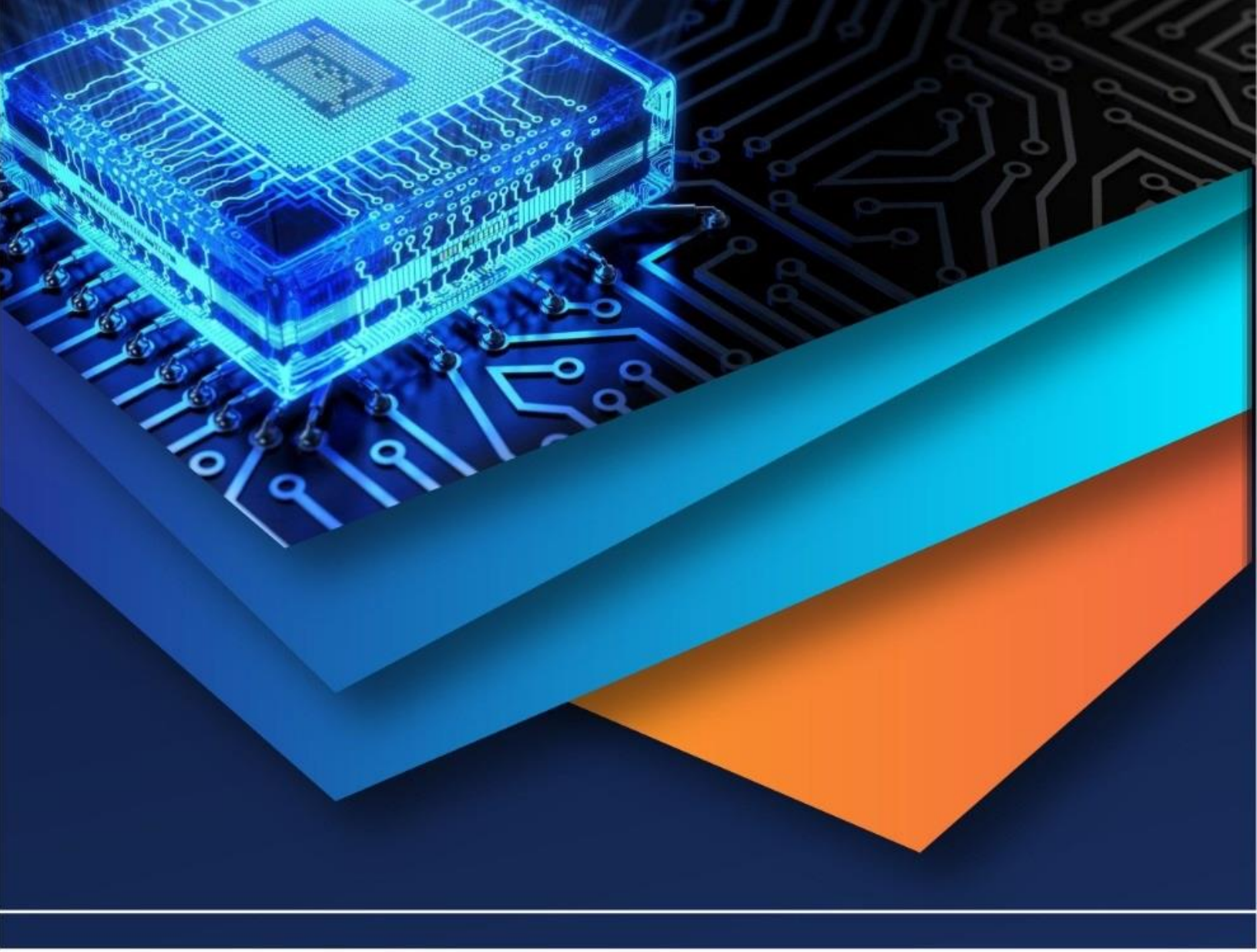
V. CONCLUSION

Chatbots powered by AI arerevolutionising the commercial world today. They can effectively communicate with a big number of people. We presented a College ManagementSystem that provides an external internet portal in addition to an internal one for use by students and faculty. The public interface now features a chat- bot that allows consumers quick access to frequently-requested college information. Thestudent/staff portal was designed to make it simple for both students and teachers to access and update their personal data (such as grades, attendance, and so on. Therefore, we have proven that our chatbot'sUI is both tasty and user-friendly.

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