

College Enquiry Chatbot Using Rasa

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ABSTRACT

Nowadays, many people are using smartphone with many new applications i.e., technology is growing day by day. A chat bot has information stored in its database to identify the sentences and making a decision itself as response to answer a given question. The college enquiry chat bot will be built using algorithm that analyses queries and understand user's message. This chat bot is implemented using RASA. Rasa is an open-source framework for building AI bots which consists of two components: Rasa NLU and Rasa core. Rasa core is the component which handles the dialog engine for the framework and helps in creating more complex chatbots with customization. Rasa's NLU helps the developers with the technology and the tools necessary for capturing and understanding user input, determining the intent and entities. To design a College Enquiry Chatbot for Students to solve their queries within few minutes. Hardware requirements are i3 processor-based computer and 2GB-RAM. Software requirements include Rasa and Python 3.6 or higher. The aim is to implement a chatbot which can resolve student's queries, search the result for query and give the solution. The chatbot will handle the queries, ultimately reducing the human effort.

Keywords: Artificial Intelligence, Database, Intelligence Machine.

I. INTRODUCTION

Nowadays, we see the chat bots everywhere Chat bots are the source of answers to the users questions in any particular domain where it is operating. Chat bots are the source of answers to the users questions in any particular domain where it is operating.

To compete with the best Frameworks like Google Dialog Flow and Microsoft Luis, RASA came up with two built features NLU and CORE.

RASA NLU handles the intent and entity. Whereas, the RASA CORE takes care of the dialogue flow and guesses the "probable" next state of the conversation.

Unlike Dialog Flow, RASA does not provide a complete user interface, the users are free to customize and develop Python scripts on top of it.

In contrast to Dialog Flow, RASA does not provide hosting facilities. The user can host in their own sever, which also gives the user the ownership of the data.

The need for college enquiry system arises due to various reasons which include: the slow nature of college website, an outsider would not know where to search for a particular piece of information, difficult for the person outside college's domain to extract information. The smart solution for all the drawbacks

lends to the need of the system. The college inquiry system will provide the response by summarizing the query and then output answers, it also provides selective information what the user wants. A college system will dispense all answers relating to domains such as admission, examination cell, notice board, attendance, placement cell and other miscellaneous domains.

Contribution:

In this paper, we proposed the method in which we can get the answer to the query given by the student . The algorithm presented here is extended by previous works by [1],[2],[3].

Our contribution works, compared to previous work can be summarized as: In our system we will compare the query in our database and then give the output to the user.

Structure:

This paper is organized as follows: Section 2 presents Related Work. Section 3 summarizes our Proposed Work which consists of our base algorithm which presented in [1],[2],[3]. We will evaluate our methods & compare with existing work in Section 4 as Experimental Setup & Results. Finally, in Section 5 we conclude and present suggestion for future work.

II. RELATED WORK

Conversational assistants are becoming integral part of daily life. Rasa Core and Rasa Natural Language understanding (NLU) are easy to use tools for building conversational systems. Rasa is an essential set of tools for building more advanced and efficient AI assistants/chatbots.[1][2]

Rasa is an open-source framework for building AI bots. Rasa open-source framework consists of two components: - Rasa NLU and Rasa core. Rasa recommends using both Rasa NLU and core.[4][5][6]

Jayesh Gangrade et al. proposed a Customer Support Chatbot Leveraging Machine Learning in which it can be seen that rasa core features like slots, forms, supervised interactive learning, API integration, and database makes it a complete framework that can be used to perform highly complex tasks. The chatbot based on rasa has more capabilities than any open-source alternative.[1]

Hiral Paghadal et al. proposed Implementation of a Chatbot System using AI and NLP in which Chat bots are basically used for information acquisition.

It can run on the local PCs and mobile phones, though most of the time it is accessed through the internet.

It can be compelling, captivating and spell-binding. It is a conversational agent which interacts with users in a certain domain or on a particular topic with input in natural language sentences [2]

III. PROPOSED SYSTEM

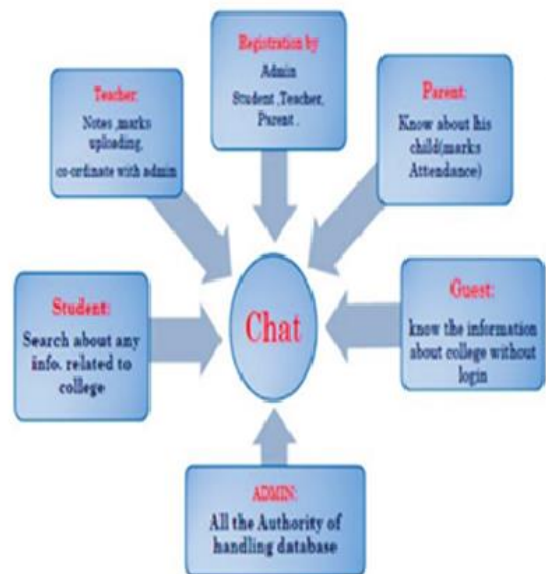


Fig :1 - Proposed System

Admin:

Add Student: The Admin adds the student and the password is generated by the system and sent to the students Mail Id. **Add Course:** The Admin is allowed to add the Course and its Subjects semester wise. **Add Timetable:** The Admin is allowed to add the timetable for the course semester wise in the form of an .jpg **Add Schedule:** The Admin is allowed to add the Schedule for the course semester wise in the form of an .jpg **Add Booklet:** The Admin adds the booklet limited to a pdf file only. **Add Test Solutions:** The Admin adds the test solutions limited to a pdf file only. **Add Vide Links:** The Admin adds the video links which is a URL.

Add Weekly Marks: The Admin adds weekly marks; weekly marks are not subjecting wise and out of 25. **Add PT1/PT2:** The Admin is responsible to add the marks for PT1 and PT2 which are subject wise out of 25.

Add College related information e.g., Events, workshop doc, photos, branch info with photos. Which is useful for represent college. **Student: Student**

Login: The Student is allowed to login into the App with password sent to his/her email Id and is remembered once logged In. **View Timetable:** The student can check timetable limited to only his/her course and semester, it's an Image and can be pinch zoomed. **View Schedule:** The student can check Schedule limited to only his/her course and semester, it's an Image and can be pinch zoomed.

View Booklet: The Student can see a list of the booklets limited to his/her course and semester which are viewed by default by Google docs. **View Test Solutions:** The Student can see a list of the test solutions limited to his/her course and semester which are viewed by default by Google docs. **View Video Links:** The Student can checkout video links which are directed to the dedicated web link. **View Weekly Marks:** The Student can see his weekly marks

and the marks are displayed as a Bar Report. **19 View PT1/PT2:** The Student can see his marks in the form of 2 reports namely Line Chart and Pie Chart. Line Chart is divided into 3 fragments (Highest, Average and Students Marks) to help the student with his progress and rank Pie Chart shows only the students marks. **University Link:** The link is redirected to the Web. **Text to Speech:** The bot also speaks out the answer. (if student have any query student write query in text view and android app answer it in voice and also text format.) **View College related information e.g., Events, workshop doc, photos, branch info with photos.** Which is useful for represent college.

Parent: Parent

Login: The Parent is allowed to login into the App with password sent to his/her email Id and is remembered once logged In. **View College related information e.g., Events, workshop doc, photos, branch info with photos.** Which is useful for represent college. **View Marks:** The Parents can see his/her child marks and the marks are displayed as a Bar Report.

Proposed Algorithm:

The proposed methodology makes use of both qualitative and quantitative perspectives, and includes a broad array of approaches such as literature reviews, expert opinions, focus groups, and content validation.

The proposed system will have the following modules:

A] Online Enquiry:

Students can enquire about facilities and query related to exams, academics, fee structure, etc. Students can also ask questions related to placement activities.

B] Online Chatbot:

The result can be showed in the form of images and card format or in text format. The query will be answered on the basis of questions asked and the

language model built and also the response media created. Users that want to enquire about the college at the time of admission or any competition held in the college can query to the chat-bot.

Given below is the system architecture of this chat-bot:

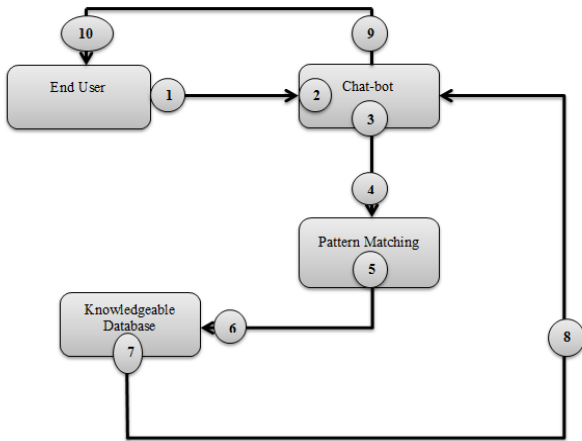


Fig :2 - System Architecture

The basic algorithm that will be implemented for working of this proposed system is as follows:

- Step 1: Start.
- Step 2: Get the input query from the user.
- Step 3: The query is pre-processed. E.g. suppose there is this query “what are the project domains for CSE fourth year major projects.” So, we are going to remove these stop words like “are”, “the” using pre-processing technique.
- Step 4: Fetch the remaining keywords from the query.
- Step 5: Match the fetched keywords with the keywords in Knowledge base, and provide an appropriate response.
- Step 6: Further the Database module is used to call proper services using entity information to find proper data.
- Step 7: The keywords will be matched with the help of keyword matching algorithm.
- Step 8: It returns the query response to the bot.
- Step 9: Chat-bot packages the data into proper response for display by the client.

DATA FLOW DIAGRAM

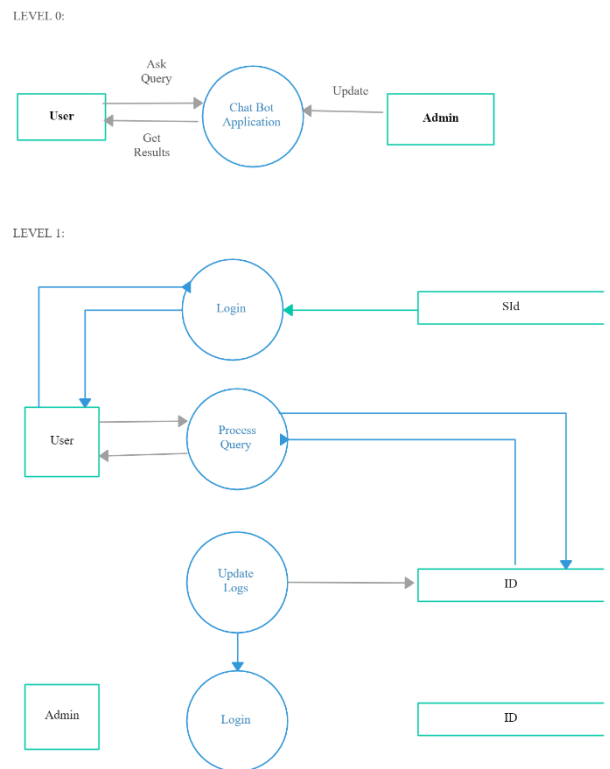


Fig:3 - Data Flow Diagram

IV. Experimental Evaluation

Based on the databases, python dependencies need to be installed. Its configuration is defined in endpoints. The data needed to be fetched from the database, this processing can be done using set of defined actions. An instance of connection on which cursor is defined, is used to execute the query. Based on the result from database, the response is given to end user.[1]

From the study it can be seen that rasa core features like slots, forms, supervised interactive learning, API integration, and database makes it a complete framework that can be used to perform highly complex tasks. The chatbot based on rasa has more capabilities than any open-source alternative.[2]

Further, in this paper, internals of rasa have been modified to carry out custom data logging of client IP

and port. All internals and custom action have been studied which further states that rasa is a complete open-source framework for the development of chatbots and for the developers who don't want to dig into the internals of natural language processing. The future scope of this study, voice and face recognition engines can be integrated for more complex task like ATM cash withdrawal. Performance may be enhanced with use of various learning procedures of machine learning.

Result:

To analyse users queries and understand users' message. To provide an answer to the query of the user very effectively. It also helps to save the time of the user since s/he does not have to personally go to the college for inquiry.

This system will help the student to be updated about the college activities. The system will reply using an effective GUI which implies that as if a real person is talking to the user. College admission related queries could be answered through it. Viewing user profiles and retrieves attendance and grade/ pointers.

College students can get information about examinations to be held. College students can fetch particulars about placement activities.

V. CONCLUSION

The goal of the system is to help the students to stay updated with their college activities. Artificial Intelligent is the fastest growing technology everywhere in the world, with the help of Artificial Intelligent and Knowledgeable database. We can make the transformation in the pattern matching and virtual assistance. This system is developing chat bot based on android system so with the combination of Artificial Intelligent Knowledgeable database and virtual assistance. We can develop such chat bot which will make a conversion between human and

machine and will satisfy the question raised by user. The main motive of the project is to reduce the work load on the college's office staff and reduce the response time to a user's query.

VI. REFERENCES

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