

DEVELOPMENT OF COLLEGE ENQUIRY CHATBOT USING SNATCHBOT

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Abstract – A chatbot is a computer program that converses via auditory or textual user interface. The developed chatbot functions by providing appropriate answers to the query presented by user about the college activities. The chatbot is developed to ease the work of the office staff. As the chatbot is available at any time it helps users query anytime. The system responds using effective GUI as if a real person is responding to the user.

involves fetching the keywords from the user’s query, searching it in the knowledge base and then showing the output.

2. SYSTEM ARCHITECTURE

The figure 1 is the architecture diagram of the proposed system. The college enquiry chatbot has four main modules of which the user and the administrator interacts with the NLP chatbot. The user interacts to query while the administrator to add and modify the interactions. The NLP chatbot updates the query to the database server each time the administrator adds or modifies an interaction. It also responds to the user with appropriate answer.

When the user queries the chatbot the chatbot server finds the keywords within the query thereby fetching the keywords from its knowledge base. Once the keywords are matched the answer associated with it is retrieved from the database. If in case, there is no matching keyword from the query an error message will be displayed when the user can ask the questions via feedback form. The administrator receives the feedback mail to which he corresponds and also updates the database.

Key Words: GUI, NLP, AI, Keyword matching, IDE.

1. INTRODUCTION

The proposed chat bot is a NLP chatbot used to provide service to the user who can query any college related activities through the system, which answer by its knowledge base. The user doesn’t have to personally go to the college for enquiry. The system analyses the question and then answers to the user as if a human is interacting. The important keywords from the query will be fetched from the knowledge base. If the match is found the relevant answer will be provided to the user or the default message will be shown to the user that “Answer to this query is not available at this moment, please revert back after sometime”.

The “Keyword Matching” algorithm will be used to match the keywords from the knowledge base. In some cases, user may find out that the answer given to his/her query is not relevant. In such cases, the user can mark this answer as Invalid, and an instance of this invalid answer will be sent to the Admin panel at the same time. Whenever Admin will log in, he will get to see the answers which are marked invalid and then he can do the necessary changes to the knowledge base so that user will get the proper result when he will ask the same query next time.

The system will have two types of users. First type of the user will be the Admin, who will handle the entire system, and the other type of the user will be Students querying.

To access this system, user needs to have a web services enabled device. The system proposed system will be a web based system. So, the entire project will be hosted on a cloud platform. The users can access this system from any place and at any time. The response time to the queries of the user will depend upon the internet speed of the user. If user has a decent internet connection, he/she will get the answers to his/her queries in the usual time. The usual reply time will be around 3-5 seconds as the process

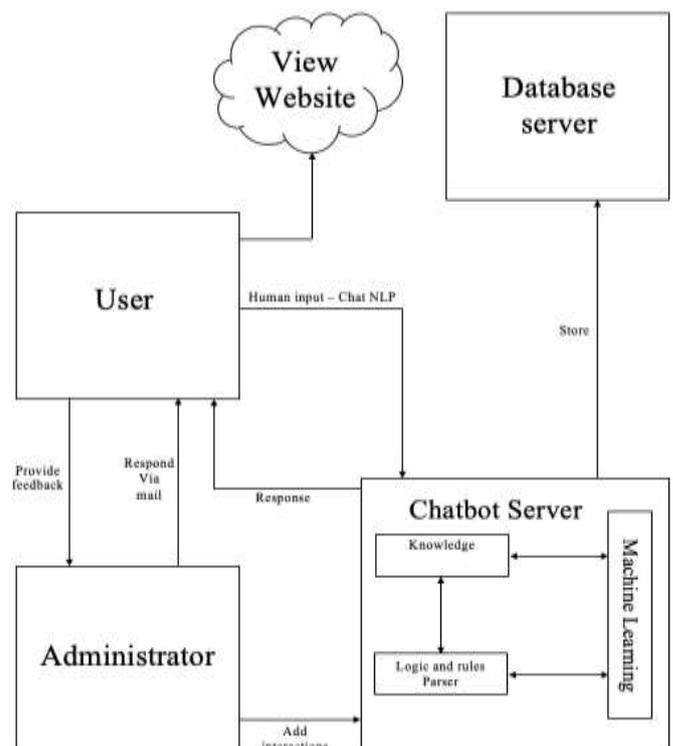


Fig-1: System architecture

2.1 SYSTEM REQUIREMENTS

Software used:

- Operating system: Any operating system
- Web technology: HTML, CSS, JavaScript
- IDE: Dreamweaver IDE
- Application server: SnatchBot server
- Database: SnatchBot database
- Email platform: Gmail
- Web hosting: 000webhost.com

Hardware used:

- Processor: 2.3 GHz, intel core i5
- RAM: 8GB
- Hard-disk: 256 GB SSD

2.2 ALGORITHM

Step 1: The basic algorithm that will be implemented for working of this proposed system is as follows: Start. Visit the website to interact with the chatbot and tap on the chatbot icon.

Step 2: Ask the desired query. (INPUT)

Step 3: Pre-processing of the query, Example: Suppose there is this query "Who is the HOD of CS department". At first we are going to remove these stop words like "is", "of" and "the" during pre-processing technique.

Step 4: Keywords from the query are identified from the NLP database for further process.

Step 5: The fetched keywords are then matched with the keywords in Knowledge base, and provide an appropriate response. The keywords will be matched with the help of keyword matching algorithm. If the keyword is matched Go to step 7 else step 6

Step 6: If the keyword is not matched provide an appropriate answer. Example: "Thank you. Your answer is unavailable please leave the feedback, your query will be mailed soon." Go to step 8

Step 7: Return the query response as an output to the user. Go to step 9.

Step 8: When the admin logs in the unanswered queries can be mailed back manually and the answer for the query is updated in the database for further use.

Step 9: Exit

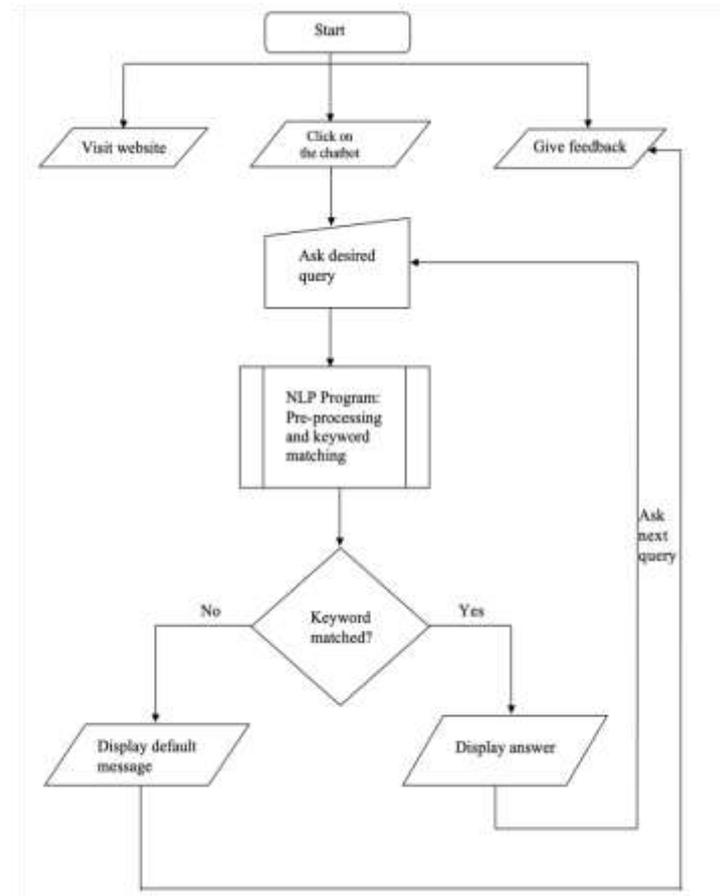


Fig 2: Algorithm flow chart

2.3 MODULES

- **Chatbot enquiry webpage module** The chatbot enquiry webpage comprises of the information about the college. The right-hand upper corner comprises of the feedback module along with the link to the official BIET website. At the right-hand bottom corner lies the chatbot which helps in answering the various queries. With just a click on the icon the chatbot pops up and greets. The chatbot has the capability of answering queries through bot statement, images and links as per the pre-fed database.
- **Feedback module** The feedback module present at the right-hand upper side helps user provide feedback to the administrator. As the user click on the feedback, it redirects into the email where in the mail is sent to the administrator's ID, thereby reaching the administrator for further help.
- **Administrator module at the chatbot end** The administrator at the SnatchBot holds access to database, the underlying connections and NLP. The administrator can add, delete or modify the

database with relevant data at any point in time. It the administrator who can interconnect the queries to improve the dialogue flow of the user.

- **Database Module** The SnatchBot database stores the queries updated by the user in its database. As and when the administrator updates the query the database updates automatically. The updates can be viewed through build bot section that has interactions upgraded by the user.

3. RESULTS

The developed chatbot matches the keywords in the query and responds using keyword matching from its knowledge base.

Case 1: If the query is matched the chatbot responds as shown below.



Fig 3: Response to matched query

Case 2: If the query is not matched the chatbot responds as follows.

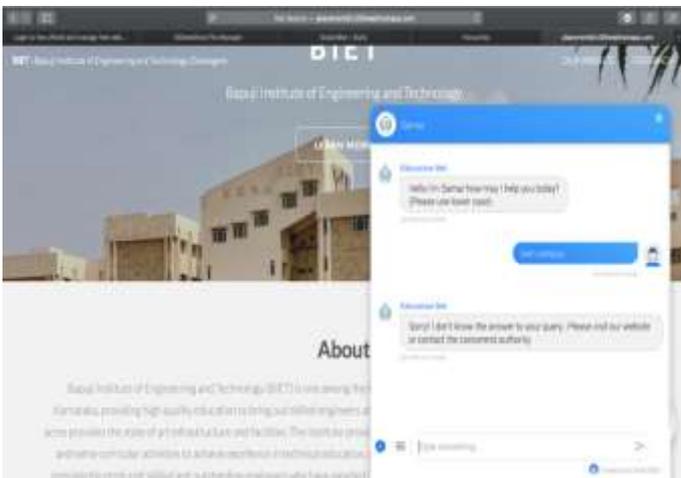


Fig 4: Response to unmatched query

4. CONCLUSIONS

A chatbot system for college enquiry is developed that overcomes the availability issue of the existing system. It helps avoid burdening the office staff to know the college details. As this chatbot is integrated with NLP module its interactions mimic the human interactions thereby acting as a personal assistant guiding through the information of the college.

This chatbot system has an upper hand as it can respond not only through statements but also in the form of images and links. For any query that doesn't have an answer available is then sent to the administrator via email for which the user receives the mail back. Then the query is updated to the system by the administrator. The chatbot is secure as only the administrator can view and modify the interactions by providing appropriate ID and password. There is no chance of irrelevant data to be displayed as the administrator verifies the interaction.

5. FUTURE SCOPE

- **Upgrade with multi-lingual features:** This can be achieved by tuning the system with multiple language database.
- **Upgrade with self-learning mechanism:** Artificial intelligence can be integrated with the existing system to upgrade it with self-learning capabilities.
- **Provide voice input/output:** The system can be upgraded with voice-based input and output by using certain voice API.

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