

AI Chatbot for College Enquiry

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ABSTRACT

Every campus needs a campus guide to answer different types of questions without any problem. Every newly enrolled student in the college has a long list of queries- "What are college timings", "Where is the gym?", "When does the library open?", etc. Further, students have queries regarding syllabus, academic calendar, semester break and so on and so forth.

To tackle these problems we are incorporating Artificial Intelligence(AI) technology which is spreading wide across all the fields, and reduces the time and efforts of humans by providing optimized results. So, we are going to implement a virtual assistant using artificial intelligence techniques and natural language processing that can solve any college related query. This will function as a machine with Artificial based intelligence. Machine learning algorithms will be used to train the bot, and once trained on a large enough dataset, the bot will understand college- related inquiries. The bot also understands the intent and meaning behind the orders. The AI chatbot identifies the input, context, and intent, which then reacts accordingly.

Keywords— Artificial Intelligence, Database, IntelligenceMachine, Natural Language Processing

can range from simple programs that respond to a single instance to advanced virtual assistants that can learn and improve as they collect and process data to provide superior levels of personalization. The technology that helps a bot(machine) to understand what a human wants to convey through a text is NLP and Machine Learning. Chatbot receives input from user, then a series of complex algorithms process the received input, understand the user's intent, and based on the classification value, intent with highest value is selected and an answer is selected from this intent. The chat-bot system is going to be developed using Neural Network, NLP, python and JavaScript and integrated into the college web page. The learner will find it simple and quick to get their questions answered directly using our chatbot. Students' questions are answered by the chatbot in the form of conversational text, giving them the impression that they are conversing with college employees.

Chatbot provide users with details about:

- 1) Academic programs
- 2) College campus guide
- 3) Financial aid information
- 4) Admission processes
- 5) Fee structure
- 6) Timetable of every batch of every department
- 7) Faculty, Alumni, placements, etc.

I. INTRODUCTION

Chatbots are computer programs that replicate and analyze human dialogue (spoken or written), enabling humans to communicate with electronic devices as if they were conversing with a live agent. Chatbots

II. LITERATURE SURVEY

Title	Year	Author Name	Proposed Methodology
A Web Based College EnquiryChatbotwith Results	2018	Sagar Pawar, Omkar Rane, Ojas Wankhade, Pradnya Mehta	Bigram is applied to quantify the text. Improved information gain algorithm are used.
College EnquiryChat Bot	2019	Karanvir SinghPathania	Uses Libraries and Artificial Intelligence Markup Language to have conversations with humans.

College Enquiry Chatbot	2021	Mrs. Nidhi Sharma, Gayatri	Made by creating a HTML and CSS file and by writing AIML Scripting for ChatBot Standard startup file: (std- startup.aiml). S QLite Database as well as Flask was used
Chatbot for College Enquiry	2021	Emil Babu, Geethu Wilson	The chatbot can breakdown the user sentence into 2 things: intent and an entity. Once the question is entered, the chatbot use a heuristic approach to deliver the suitable response.
Admission Chatbot	2021	Ali Jboor & Maher Salamin	Used the rasa framework to build the required chatbot Interactions are broken down to: Structured : You know what your customers will ask and can design it easily Unstructured: It's hard to predict what queries .The role of AI comes to light here, it decodes the context of the text based on NLP analysis. while the same NLP will provide voice to the chatbot

A thorough overview of earlier studies on a subject is a literature survey. The literature review examines books, journals, previously researched papers and other sources that match our field of interest. It needs to provide a theoretical framework for the study and assist you in defining its scope.

The first chatbot was developed at Massachusetts Institute of Technology (MIT) by Joseph Weizenbaum. It was in 1994 that the term 'chatbot' was first introduced. From this original concept, more efforts to establish a chatbot system were developed. To utilize the Chat-Bot program, the user must log in. The user can submit complaints and inquiries at that precise moment. NLP is used when a user interacts with the bot because the context of the inquiry is recognized. To identify the words' feelings, WordNet calculation and grammatical forms labelling are used. The knowledge base is checked for answers to user questions. In that case, the user is supplied with the proper response if it has been found. The administrator responds to such questions if the database does not have the information requested.

III. METHODOLOGY

The suggested methodology incorporates quality viewpoints and uses a wide range of techniques, including literature studies, and content validation modules:

A. Pre - Processing stage

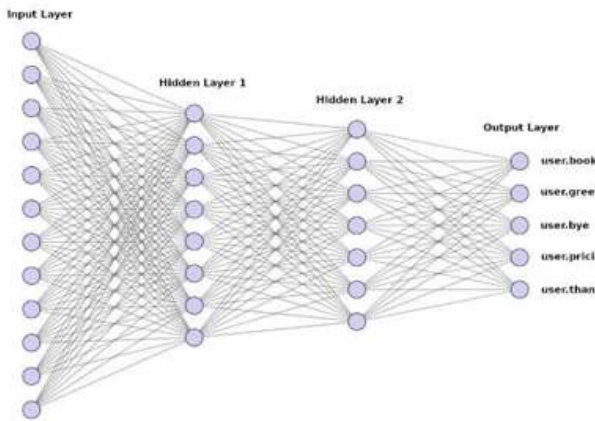
Pre-Processing is the first step towards building an AI based chatbot. In pre-processing the raw data is

transformed and is made suitable for the input for model using methods like cleaning, organizing, segmentation and stop-words removal. The raw data, sentences and words are converted into numbers, a language understandable by machine.

- 1) **Tokenization:** Tokenization is the first step to be performed in pre-processing. Tokenization breaks sentences and paragraphs into smaller meaningful parts, which can be assigned meaning easily.
- 2) **Extracting Entities:** Extracting Entities also known as Name Entity Recognition (NER), is a technique that extracts the key elements from the provided data. Entity extraction recognizes the words that are meant to be considered as one specific word. Example: city name, person name, etc.
- 3) **Word Embedding:** Word Embeddings, also called word vector represent words in a form of numeric vector, this numeric vector helps to have a similar representation of similar words.

B. Understanding User Intent

Understanding user intent is a method of understanding what a user wants to talk about. Intent recognition separates the input data into different suitable categories of intent. It uses natural language processing to associate given input to an intent.



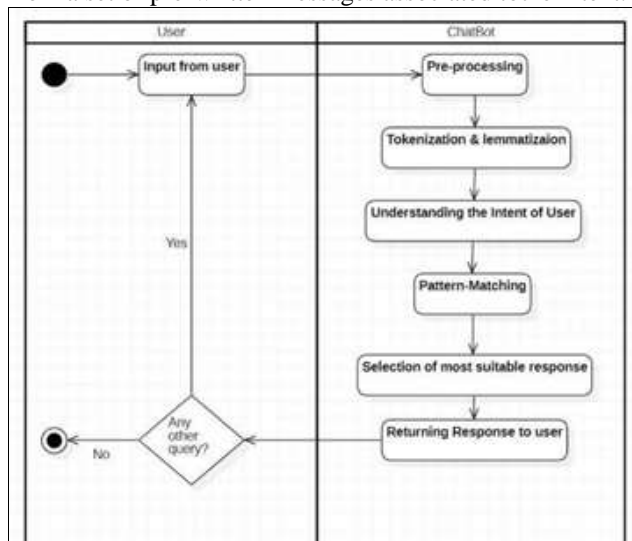
The above image represents a conversation flow of connected neural network.



It's a visualization of Intent Classification in conversational flow.

C. Generating a Response

For generating response, the message is selected from a set of pre-written messages associated to the intent.



IV. IMPLEMENTATION

To implement an AI chatbot, the first step is to select technologies to process the above-mentioned steps. Then, we must create a dataset consisting of possible intents to which our bot should reply. The dataset would be of possible questions labelled under a group and then a set of replies to that group. The chatbot will have replies giving information about college.

The basic algorithm for implementing AI chatbot:

- Begin
- User input

- Then the input is pre-processed.
- Tokenization of input and extracting entities.
- Understanding the intent of the user.
- The code will generate classification values for each category of intent. The category with the highest classification value will be selected. Once the intent is recognized, the response will be randomly selected from the set of answers.
- Selecting a response from generic pre-written messages from selected intent category.
- Returning response to user.
- End

V. CONCLUSION

Through the project review, we have discussed the design and development of a college enquiry chatbot that includes features such as admission queries, course information, and student feedback. The chatbot has been trained using Natural Language Processing techniques to understand the intent of students' questions and provide appropriate responses.

The college enquiry chatbot project provides a practical solution to the challenges faced by educational institutions in managing student enquiries. It is a step towards leveraging the benefits of Artificial Intelligence and Natural Language Processing in the education sector, which can result in enhanced student satisfaction, improved efficiency, and reduced workload for staff. The chatbot can be further developed and expanded with additional features to cater to the diverse needs of students and enhance their overall experience.

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