CHATBOT APPLICATION FOR COLLEGE

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ABSTRACT

People search for educational institutions details for various purposes like admissions, fee, transportation etc. Parents search through various institutions details before choosing best institute for their ward. Though the website of a particular institute displays most of the information, parents may not be able to find information they require. In such case, they have to contact the concerned person of the institute either directly or through phone. At the time parents visit or call, concerned person may be busy or not reachable. To overcome this problem, an automatic answering system using Artificial intelligence called college chatbot, is developed. In chatbot for college application not only students, parents can also know the information related to holidays, exams, events etc., beyond college hours. Through college chatbot application, a student or parent can get answers to their queries from anywhere and anytime without any manual intervention.

Keywords: chatbot, NLP,

I. INTRODUCTION:

A Chatbot holds communication with humans. It provides user interface to allow user to take commands and receive response. There are many uses with the chatbot i.e., getting an instant response, user friendliness and approachability, answers to both simple and complex questions, easy communication, complaints resolved quickly, 24hour service, a good customer experience, detailed or expert answers etc.

Fig.1 Communication between chatbot and user

BACKGROUND:

In 1950 Turing machine was developed whether machine can think like a human or not. AI is a branch of computer technology to make computer-controlled robots to do tasks like that of human brain. The chatbot technology fall under the week AI. A chatbot is an actual thinking machine but rather than a machine to do human conversation. Two such popular chatbots from history are Eliza and Alice. Eliza was developed by MIT Artificial Intelligence Laboratory by Joseph Weizenbaum in 1966 and was named Eliza.

Eliza: It is a chatbot that uses natural language processing for query response.

Alice: It is a natural language processing chatbot program that engages human interaction by applying some heuristic pattern matching rules to the human input.
II. LITERATURE SURVEY:

ELIZA was designed to imitate a therapist who would ask open-ended questions and even respond with follow-ups. It is a chatbot that uses natural language processing for query response. [1]

An intelligent chat larva is going to offer data or answers to any question asked by user associated with bank. Intelligent system can first take input from bank client. This input is going to be taken as voice or written format. In tune with input, intelligent system can process the question and provides response to user. [2]

The paper[3] describes the planning and development of an informal agent referred to as EASElective for elective course choice. EASElective is meant to enhance existing tutorial advising services with an internet tongue interactive interface which will support a voice communication on topics from basic official course information to informal students' opinions.

Mikick et. al[4] created a chatbot called CHARLIE which has the ability to communicate with students by question-and-answer method about their college. to develop this chatbot they used NLP. In general, these chatbots are called AIML-based bots. The special feature for this bot is teachers can add features or information as data to the chatbot.

The paper[5] describes a chatbot known as "pixel". It is used to retrieve the related information about libraries and libraries’ resources. for data storage purposes they used SQL language and to get more clarity about display they used PHP. In this they store some library links in metadata to increase efficiency and also this chatbot can use it all over the world that means it's not restricted and any user can use it to get information about libraries across the world.

Kumar et. al developed a chatbot [6] mainly for a cause of helping visually handicapped persons. This chatbot’s main feature is we can communicate through speech/text and it will respond with answers by both speech and text. And also, if the user asked a question and the chatbot didn't have answers for that question in the database it will navigate the user to related links by google.

The chatbot developed by Bhavika et. al [7] is mainly used by students for university-based questions. It is very interactive with users at any time. This bot gives efficient and accurate answers to the questions which are stored in a database. To develop this chatbot they used AIML and LSA, where AIML is used to give answers for general and template questions. For other service-based questions, they use LSA method.

Masmuzidin et. al[8] developed a chatbot mainly for children. Nowadays children are very friendly with their mobile. They know mobile features better than elders. So on this note, they developed a chatbot for children which tells stories and also it teaches children some moral values in an interactive manner using natural language.

Orlando et. al[9] developed a chatbot that has a special feature i.e., we can communicate with agents through calls also when the answer/question was not able to share through text. This feature is implemented with PABX software for VoIP phone management. By using PABX we can directly send short SMS also. This chat can be used by anyone throughout the world.

PROPOSED WORK:

As part of proposed work to create a chatbot for college, a dataset is created. Through this dataset, chatbot can fetch the data from respective file and it will give the answer to the user. The dataset includes the data about the marks, attendance, college information etc. Because of this chatbot, user can easily find the answer and within short period of time. Chatbot can easily respond to any number of users at same time. So, there is no need to wait for the response.
The block diagram for proposed system shown in fig.2 contains seven steps.

**Sentence to Vector Converter:** By using natural language processor it takes input from user. First it converts in to vector form from sentence by CBOW model. The CBOW model will set pairs of (context_window, target_word), the size of context_window is trainer wish in this bot we use 2.

**Context Analyzer:** It is used for better understanding about text. By this context we can improve our bot with some recommendations to reach goals.

**Decision maker:** After analyzing the context, in this step it will decide about response.

**Response Generator:** In this step, the response will be generated for the user using required data.

**Syntaxnet (Natural Language Understanding (NLU):** It is a part of artificial intelligence where it is very helpful to users to interact with computer in natural sentences. Mainly it is helpful in speech recognition, it converts speech into text and text to speech.

**Recurrent Neural Network(RNN):** It is very unique compared to another neural networks because it has special feature. It can store the data in memory units in hidden state. By this memory units, we can easily analyze the context.

**Knowledge Base(TF/IDF):** It is used to retrieve the data from database. TF/IDF is nothing but acts as search engine.

### III. METHODOLOGY

#### Steps:
1. User types the query.
2. The user query is sent to the dialog flow.
3. User query is matched with an intent, extracts parameters and returns the response.
4. The response is fetched from the database.
5. The response is sent to the user interface.

#### Pre-processing data:
When working with text data, we need to perform various pre-processing on the data. Tokenizing is the most basic thing in pre-processing. Tokenizing is the process of breaking the whole text into small parts as words. So, it can search through those words easily.

#### Natural Language Processing for Chatbot:
It is a branch of artificial intelligence. In NLP the process is, take the input sentence and convert through morphological processing. By using lexicon and grammar, syntax analysis will be performed. By using the
semantic rules the semantic analysis is performed and the pragmatic analysis will be performed through the contextual information. Finally the target should be represented. There are two types in NLP. They are: -

**NLU (Natural Language Understanding):** It converts the natural text to structural data. Through the syntax and semantics, it will interpret intent behind the input.

**NLG (Natural Language Generation):** It converts the structural data to natural text and forms the appropriate response.

**AIML FOR CHATBOT:**

Chatbot Application for college system will provide the answers to the students or parents’ queries. In this project AIML is used. Artificial Intelligence Markup Language (AIML) was built to work as the brain of the chatbot. It manages the chatbot and adds knowledge to the chatbot within AIML files as brain or knowledge base. AIML files have AIML objects which are made up of topics and categories. AIML Architecture is shown in fig.3.

![AIML Architecture](image)

**Syntax:**

```xml
<category>
    <pattern>What is the full form of AIML</pattern>
    <template> Artificial Intelligence Markup Language </template>
</category>
```

A category is the basic unit of knowledge in AIML, in this each category consist of input question and an output answer. Here each category consists of two tags. Those are Pattern and Template tags. The question is the Pattern and the answer is the Template. It consists of letters, numbers, spaces and symbols. There are two primary types of tags to provide advanced functionalities i.e., `<that>` tag and `<topic>` tag. `<that>` tag inside the category always matches the last answer given by the chatbot. It is important for chaining conversations. And the tag `<topic>` is outside the category, it will group categories together. In AIML, recursion is useful to connect the patterns which have the same meaning. `<srai>` tag is used for recursion. It has many uses:

1) Symbolic reduction

2) Divide and Conquer

3) Synonyms

4) Spelling or grammar corrections

5) Detecting keywords anywhere in the input.

**DATASET:**
To store all the information, JavaScript Object Notation format is used. The dataset will be ‘intents.json’. This is a JSON file that contains the data about different queries we need to find the answer and give the responses from those files to the respective user. It is commonly used for transmitting data from system to the user in web application. For an example, sending some data from the server to the user, so it can be displayed on a web page and ask the information to the sever which is asked by the user.

APPLICATIONS OF CHATBOT:

The Wall Street Journal Chatbot:
It gives quick news updates to the users. Users can ask the chatbot about different types of news, then chatbot will give the latest news of the respective type. For example, if user asks about stock market, it will send the information of stock market.

Order Food:
Through this chatbot user can order the food or can choose the food from various restaurants. When user opens the window, the chatbot will send the message with different options, like browse restaurants, food categories, deals, offers, customer service etc.

Book flights:
User can book flight tickets as per the requirement. In this chatbot user can select the price range. After that it will give information in the respective price. So, user can easily book the flight tickets. There will be a help option also in this chatbot. Users can clarify their doubts through this option.

Florence chatbot:
Florence is a personal health assistant chatbot. It helps the users to manage their health by reminding them with medication. In this chatbot, there are many features like a simple health tracking, symptom checker and pill reminding.

IV. RESULT
The output screen for chatbot for college application is shown below in fig.4.

![ChatBot For College](image_url)

Fig. 4. Output Screen
V. CONCLUSION

This paper discusses about a chat bot application for college that will be used to get answers related to users’ submitted questions. The chat bot application for college can be extended by incorporating more data so that all the user queries can be answered.

REFERENCES: