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Smart Chat Bot for Conversational Over-all College

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***Abstract*— In place of direct interaction with a live college administration, a chat-bot is a software programme that is used to conduct an online chat conversation via text or text-to-speech. We provided a ChatBot that creates a dynamic Answer for online student inquiries in the suggested method. The ChatBot used by the Proposed System is powered by artificial intelligence. This suggested ChatBot recognises the student and teacher context that initiates the specific answer purpose. The desired reaction will be generated for the student and teacher because it is responding dynamically. The suggested method uses machine learning algorithms to train the ChatBot by observing different requests and responses from students and teachers. These days, chatbots are starting to be quite capable since artificial intelligence helps the human touch in every discussion, enables chatbots to understand users' questions, and enables them to deliver accurate responses. The goal of this project is to decrease the requirement for several systems for various procedures and to lessen the reliance of an administration on humans. Developing a ChatBot over connected data presents a variety of difficulties, such as supporting numerous knowledge bases and comprehending student inquiries. We initially design and create an architecture to offer an interactive user experience in order to overcome these issues. In order to comprehend user intents and produce SPARQL queries, we also offer a machine learning approach based on intent classification and natural language understanding. For that, we must include enough specifics on the requirements for students and professors, including the availability of text books, staff timetables, student mark information, and semester outcomes.**

***INDEX TERMS* — Linked data, ChatBot, SPARQL, natural language understanding, Artificial Intelligence, Machine learning, Web-based**

I. INTRODUCTION

Since its creation in 1960, ChatBot have become increasingly popular. A ChatBot is a virtual agent that may help people by responding right away to any questions they may have. Users can perform a variety of functions with it in addition to having conversations, like taking notes, viewing search results, viewing a timetable, and more. Giant corporations have developed a number of ChatBot over the past few years, including Apple's Siri, Microsoft Cortana, Google Assistant, Facebook Messenger, and Alexa. Natural language understanding (NLU) and semantic web technologies are used by ChatBot systems to collect relevant and helpful information from one or more knowledge bases (KBs) in the context of connected data. Usually, to achieve this goal, natural language is converted into a SPARQL query. Depending on the situation, ChatBot exchanges can be more or less valuable and can take the form of text or voice communications. Understanding the full context of the individual involved, the user end goal, and environmental elements is necessary to choose the preferred input modality. In order to understand how ChatBot are seen and used by people in daily life, we adopt a user-centred approach rather than establishing a purpose from the viewpoint of the ChatBot inventor. We can start to assess ChatBot services' performance and goals by comprehending how well they meet expectations and how they stack up against alternatives. We may anticipate more accessibility to this technology now that ChatBot are accessible on mobile devices.

II. RESEARCH METHODOLOGY

The ELIZA ChatBot by Weizenbaum was one of the first ones. It was developed at the Massachusetts Institute of Technology to act as a substitute for a psychotherapist and can converse with people using specially written scripts. This ChatBot takes its cues from the 1950 Turing test. Eventually, researchers developed and presented a variety of conversational user interfaces. The main text and pattern matching techniques used by these early ChatBot. Another early ChatBot, Parry, was created in 1972 by the psychiatrist Colby; it is also rule-based and uses concepts to construct a rough model of the behaviour of a person with paranoid schizophrenia. Wallace later introduced and created ALICE (Artificial Linguistic Internet Computer Entity), which makes use of artificial intelligence markup language (AIML) 7 and enables users to personalise their ChatBot. Rose is another ChatBot that mixes question understanding with conversation script and makes use of a thorough natural language engine to determine the meaning of the input text. The other category of intelligent conversational system is the smart personal assistant, such as Siri, which was introduced by Apple in 2012 and which can be used to voice-control devices running the macOS, iOS, watchOS, and tvOS operating systems. Google's assistant was made available for mobile and smart home devices in 2016. Amazon released the virtual assistant Alexa.

Generally, a ChatBot can be categorized into three categories, educational, healthcare, and business. They are based on the knowledge bases from those domains to provide consistent support for the user. Educational ChatBot help students answer specific education-related queries .In this ChatBot we have to make a educational ChatBot to clearing the student queries with the help of SPARQL queries. It generate responses according to the user input the dialogue context, common sense knowledge, and inference knowledge.

III. PROPOSED SYSTEM

Our project is built on a ChatBot that is driven by artificial intelligence. A React is a JavaScript library for creating that offers a user-friendly interface to make the connection with the internet and the provision of legitimate and trustworthy web services easier and more practical. We have developed a prototype ChatBot utilising the same twitch platform, an online service that gives online users access to a ChatBot platform. The web-based platform offers a sizable cognitive base that can aid in simulating human problem-solving. If a user has a question or wants to inquire about something, we can assist. Additionally, it includes different machine learning techniques that allow the ChatBot to learn from the responses and requests of different users.

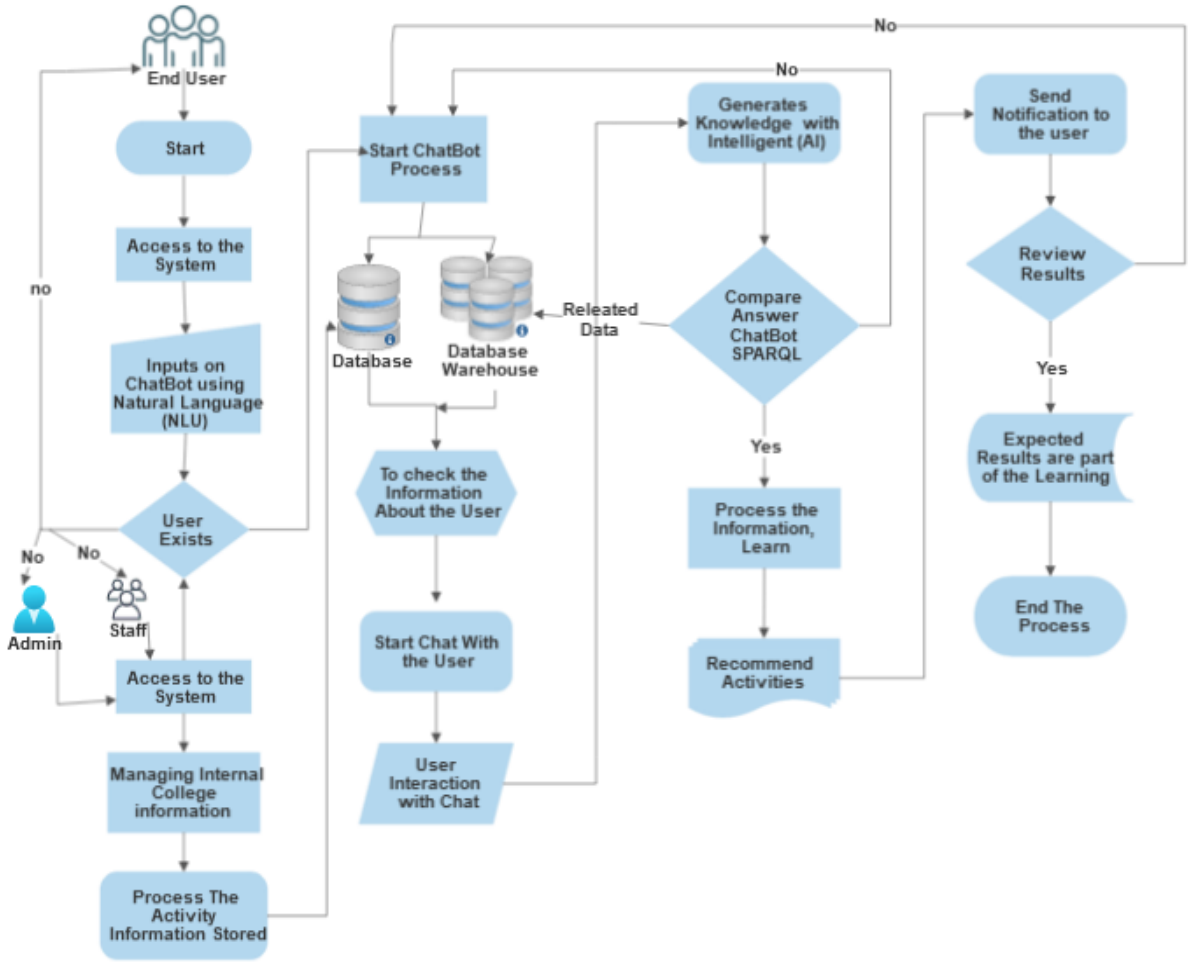

Figure 1.This figure for Intelligent Chatbot proposed Diagram.

The general college enquiry ChatBot is a methodology to support artificial intelligence ChatBot. It is a complete platform that offers both the ChatBot interface and college enquiry system using AI. Our system contains both student and college details to support visitors, parents, students also the teachers. For visitors they having the permissions to know about college admission and details also the college activities. Students they are having their own ID to access their account to download the class notes, daily time table, mark list, test details also the college activities. Teachers they can upload the daily notes and they have to know their daily class time table also knowing college activitie using their own ID.Parents and visitors won't having ID they just know about the college admission and management details with the help of college enquiry intelligent ChatBot.

IV. OVERVIEW OF COLLEGE ENQUIRY CHATBOT

To enhance usability, users can interact with the system by using a chit-chat system or voice-based messages. More details about the working mechanism of the proposed ChatBot will be explained in the following subsections.

A. ARTIFICIAL INTELLIGENCE (AI)

Intelligent machines with the use of ChatBot technology, it is now possible for people and machines to communicate naturally. A ChatBot might respond differently to the same input provided by the user depending on the topic of the current chat. A ChatBot is a type of conventional agent that can have natural language conversations with users. Despite the fact that there are several ChatBot platforms already available, developing data-driven systems still has some challenges because they require a substantial amount of data.

B. NATURAL LANGUAGE UNDERSTANDING (NLU)

The text/speech user question that triggers the interaction is handled by the "NLU" module. Speech one of the main methods used in computational linguistics to create procedures that allow computers to convert spoken language into writing is automated speech recognition (ASR). This method increases typing speed and enables ChatBot interaction for those with disabilities who are unable to use other devices. The "NLU" module initially determines the user's query's language.

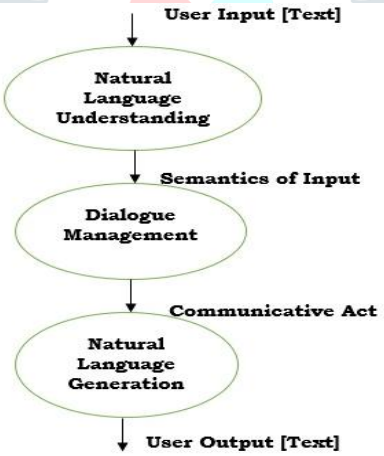

Figure 2.This figure for Natural Language Understanding (NLU) work flow.

C. QUERY GENERATION (SPARQL)

In this step, we construct a set of SPARQL queries after processing and understanding the user query. These SPARQL queries represent a possible interpretation of user queries within the given KBs (DBpedia, Wikidata). The main objective is to generate a possible queries containing information about user queries. An example of a generated query is given below and the main challenge is to construct a SPARQL query from user question efficiently and query multiple knowledge bases according to user intent to retrieve a result-set.

```
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX dbpedia: <http://dbpedia.org/ontology/>
SELECT DISTINCT  ?comment ?birthdate ?birthplace ?thumbnail ?name
WHERE {
  ?x0 rdf:type foaf:Person.
  ?x0 rdfs:label "Alan Turing"@en.
  ?x0 rdfs:comment ?comment.
  FILTER (lang(?comment) = "en").
  ?x0 dbpedia:birthDate ?birthdate.
  ?x0 dbpedia:birthPlace ?birthplace.
  ?x0 dbo:thumbnail ?thumbnail.
  ?x0 foaf:name ?name.
} LIMIT 1
```

Figure 3.This figure for SPARQL Query Efficiently

D. *MULTIPLE KNOWLEDGE BASE (KBs)*

Various methods for retrieving the answer involve training data or concentrate on a particular and unique KB (such as DBpedia, Wikidata, etc.). These methods have limitations; they can only obtain answers from specific KBs without providing the user a chance to explore other KBs, and they may also have limitations in terms of language usage and the effectiveness of the provided answers.

V. CONCLUSION

In this paper, we proposed a knowledge graph-based ChatBot system over linked data, optimized for community interaction. The proposed Conversational general college enquiry intelligent ChatBot takes the advantages of Natural Language Understanding (NLU),

Query generation (SPARQL) and Intelligent ChatBot technologies of machine learning and natural language understanding as well as dialogue management. Usability analysis shows that the proposed College Enquiry Intelligent ChatBot has improved the end-to-end user experience in terms of interactive question answering and performance. It is more convenient for information retrieval, information acquisition, intent classification, query understanding, and continuous learning.

Future work will include expanding the number of text- and voice-based data sources with privacy protection, answering questions based on knowledge bases supporting artificial intelligence (AI), understanding more languages, and integrating with third-party services (Facebook, etc.), as well as application services.

The class notes and remainder time on the schedule for the faculty members must also be maintained in our conversational general college enquiring ChatBot.

Every student can have their own ID to know their attendance and mark list, as well as to be aware of the college events, in order to keep student marks and attendance records on a daily basis.

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