Student Information Chatbot System

Computer Science, Networking (Federal University Wukari)

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Abstract. Conversational agents, also known as chatbots, are automated systems for engaging in two-way dialogue with human users. Nowadays the use of Chatbots is very popular in a large scale of applications especially in systems that provide an intelligence support to the user. In fact, to speed up the assistance, in many cases, these systems are equipped with Chatbots that can interpret the user questions and provide the right answers, in a fast and correct way. Chatbots typically provide a text-based user interface, allowing the user to type commands and receive text as well as text to speech response.

When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience. The student information chat bot will analyzes user's queries and understand user's message for appropriate response generation. This System will be a web application which provides answer to the query of the student very effectively. Students just have to put their query to the bot which is used for chatting.

The system will use the algorithms to give appropriate answers to the user. If the answer is found invalid, then there is an option to report to admin so that the users query will be satisfied. These invalid questions can be deleted or modified by the admin of the system and an appropriate answer can be embedded in the database. The student will not have to go to the college for enquiring something. Student can use the chat bot to get the answers to their queries. Students can use this web based system for making enquiries at any point of time. This system may help students to stay updated with the college activities.

Keywords: Coversational agents, Chatbots, Response generation.

I. INTRODUCTİON

A Chatbot (or Chatterbot) is a software (machine) that talks with an user (human), it is a virtual assistant able to answer a number of user questions, providing the correct responses. In the last few years there has been a fast growing up of the use of Chatbots in various fields, such as Health Care, Marketing, Educational, Supporting Systems, Cultural Heritage, Entertainment and many others. Major companies have developed several Chatbots both for industrial solutions and for research. Some of the most famous are Apple Siri, Microsoft Cortana, and IBM Watson. These are just some of the most popular systems.

There is a wide range of a less famous Chatbots that have a greater relevance for research and for their applications. One of the most challenging research tasks is the development of effective Chatbots, the emulation of human dialogues, in fact, is a really difficult task and involves problems related to the NLP (Natural Language Processing) research field . Thanks to the use of NLP algorithms and techniques it is possible to understand what the user is writing and which are his requests. Generally, this task represents the core of system but there are some problems, it is not possible to map all user requests, and the current Chatbots do not show remarkable performances because of the unpredictability of user thought during a conversation .

The correct design of conversational flow plays an important role in the development of a Chatbot. In fact, for a successful conversation, it is important to handle with all user requests and provide the right answers.

A. Chatbots

Conversational agents, or chatbots, provide a natural language interface to their users. Their design has become increasingly sophisticated and their use adopted in education, commerce, entertainment and the public sector.

1) ELIZA , was regarded as one of the first chatbots. ELIZA analysed input sentences and created its response based on reassembly rules associated with a decomposition of the input. This produced an impression of caring about its users,but it held no memory of the conversation and so could not enter into any form of targeted collaboration or negotiation. The syntactic language processing used by ELIZA has been developed significantly, leading to the development of a number of language processing chatbots .

2) A.L.I.C.E. is a chatbot built using Artificial Intelligence Markup Language (AIML), developed over the past 10 years. The chatbot is based on categories containing a stimulus, or pattern, and a template for the response. Category patterns are matched to find the most appropriate response to a user input. Further AIML tags provide for consideration of context, conditional branching and supervised learning to produce new responses. A.L.I.C.E. is a viable and experienced system but has not to our knowledge, as yet, been applied in a commercial environment.

II. MODULE IDENTIFICATION

1) *Module 1:* Admin Module
a) To handle the train responses generated by the chatbot.
2) *Module 2:* Chatbot Module
a) To process the query of user and give out the valid response.
3) *Module 3:* Text to Speech and Speech to Text Module
a) To convert the speech to its corresponding text and text to speech.

III. MODULE DESCRIPTION

The Student Information Chatbot System is an application which will enable users to ask queries related to college and the chatbot will give out the response. The input can be in speech or in text format. The speech to text and text to speech module will be in action whenever the user inserts the query. This module will use NLP to process the natural language queries entered by the user which may be in voice or text format and then convert it into an database specific query. If the query entered by the user gives an invalid result then the user has the option to report that query to admin. The admin module contains the list of the invalid questions reported by the user and also the admin can insert those questions with it's answer to the database so whenever the user enters the same query it would get an valid answer. Admin module can insert new questions and it's corresponding answers into the database. The text to speech and speech to text module will convert the input given by the user into it's appropriate format so that the query generated after the conversion can be fetched in the database and an response will be generated as an answer to the query .The Chatbot module will do the work of fetching the appropriate answer for the given query.

IV. METHODOLOGY

1) *Step 1:* Start.
2) *Step 2:* Get the user query. (INPUT)
3) *Step 3:* Pre-processing of the query E.g. suppose there is this query "what is the timing of the college" So, we are going to remove these stop words like "is","the" using pre-processing technique
4) *Step 4:* Fetch the remaining only keywords from the query.
5) *Step 5:* Match the fetched keywords with the keywords in Knowledge base, and provide an appropriate response.
6) *Step 6:* Return the query response as an output to the user.
7) Step 7: Exit

V. CONCLUSION

The main objective of the project is to develop an chatbot application that will be used to identify answers related to user submitted questions/queries. The need is to develop a database where all the related data will be stored and to develop a web interface. The web interface developed will have two parts, one for simple users and one for the administrator. A usable system will be designed, developed and deployed to the web server.

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