



Lambton
College

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CSD 3444_3 Emerging Technologies

Term Project: Chat Bot

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Abstract

As a result of the rapid technological development and the development of the chatbot concept and the time and effort it can save. Many specialized frameworks have emerged to undertake chatbot creation and development. By relying on artificial intelligence, the chatbot has integrated machine learning within it, and it has become more comprehensive and wider for various technological fields. Therefore, I have created a chatbot to facilitate the process of accessing information related to COVID-19 / Sars Corona Virus 19, using applications like Telegram, Phone, WhatsApp or integrated Messenger. As a conclusion, it lies in answering frequent and common questions by people and providing the answer to these questions at any time the person wants.

What is natural language processing (NLP)?

Natural language processing, which evolved from computational linguistics, uses methods from various disciplines, such as computer science, artificial intelligence, linguistics, and data science, to enable computers to understand human language in both written and verbal forms.

What is natural language understanding (NLU)?

Natural language understanding is a subset of natural language processing, which uses syntactic and semantic analysis of text and speech to determine the meaning of a sentence.

What is Chatbot?

A chatbot is a computer program that can simulate a conversation or chat with a user in natural language through messaging applications, website, or mobile applications and interact with users according to their input and should be available 24/7. Chatbots are developed and became so popular due to the increased use of smart devices and IoT technology

Types of chatbots

I. Base-line chatbot:

It is a chatbot that is based on a database and uses if / then logic to create a conversation flow and that takes a lot of time to ensure the understanding of the question and the answer needed.

II. AI chatbot:

This type of chatbot is more complex than base-line but it is more interactive and personalized and needs big data training to be impressive if the problem is matched to their capabilities.

III. Hybrid Model:

A hybrid approach mixes the Base-line & AI chatbot to make it smart and his behavior more expected by depending on database and Ai algorithm to work together.

How do chatbots work?

Briefly and as mentioned in the definition, humans interact with chatbots.

There are two ways to interact with a chatbot:

I. Text

chatbot analyzes the inputted text and matches the text with predefined data called intents which are categorized to manage the conversation. The user utterance is tagged with one of these intents, even if what the user says stretches over two or more intents. Most chatbots will take the intent with the highest score and take the conversation down that avenue.

II. Voice

Some chatbots can interact and understand the voice of the user using a set of application programming interfaces (API's) that converts the recorded voice to the language and then convert the voice to words of that language and then deal with the transformed text as mentioned above.

Technical Specifications

- **Base Programming Language:** Python 3.9.15
- **Base Database:** MongoDB Atlas + Dialog Flow
- **Cloud Platform:** Heroku
- **Repository Platform:** Git / GitHub
- **Chatbot Integration Platform:** Google Cloud (Dialog Flow)
- **API Platform:** Rapid API – COVID 19

Deployment of Application

For the development of this Chat Bot application I have used Python as the main programming language with numerous inbuilt and 3rd party library, This chat bot is completely independent as it has been deployed on Heroku cloud server, and uses googles dialog flow platform for independence working of it.

Platforms used for development and deployment of this application are highly secured topped with 2 Factor Authentication and Encryption, This Chatbot is publicly available, to use via telegram one can search for @Project_Chatterbot / Can call on +1(920) 249-4672 service is available 24/7 ^ 365 ¼.

References

<https://scholar.ppu.edu/bitstream/handle/123456789/5949/chatbot%20final%20documentation.pdf?sequence=2&isAllowed=y>

<https://www.youtube.com/watch?v=UVKSrj7cxak>

<https://studygyaan.com/python/create-web-based-chatbot-in-python-django-flask>

Resources

<https://devcenter.heroku.com/articles/getting-started-with-python>

<https://news.google.com/covid19/map?hl=en-CA&gl=CA&ceid=CA:en>

<https://rapidapi.com/api-sports/api/covid-193/>

<https://dialogflow.cloud.google.com/>

<https://github.com/Cloudjnet/ChatterBot>