Project Report On

ARTIFICIAL INTELLIGENCE CHATBOT

Submitted by

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II SEM B.Tech (IT)

Under the guidance of

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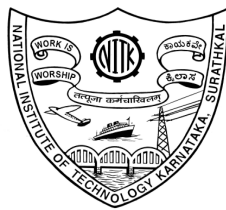*in partial fulfillment for the award of the degree*

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ABSTRACT

User interfaces for software applications can come in a variety of formats, ranging from command-line, graphical, web application, and even voice. While the most popular user interfaces include graphical and web-based applications, occasionally the need arises for an alternative interface. Whether due to multi-threaded complexity, concurrent connectivity, or details surrounding execution of the service, a chatbot based interface may suit the need.

Chatbots typically provide a text-based user interface, allowing the user to type commands and receive text as well as text to speech response. Chatbots are usually stateful services, remembering previous commands (and perhaps even conversation) in order to provide functionality. When chatbot technology is integrated with popu[2]lar web services (like Google Assistant, Facebook Messenger, etc) it can be utilized securely by an even larger audience.

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Chapter 1

INTRODUCTION

1.1 Objective

A ChatBot is an artificial person who holds conversations with humans. This could be a text-based (typed) conversation, a spoken conversation or even a non-verbal conversation. Chatbot can run on local computers and phones, though most of the time it is accessed through the internet. A chatbot is typically perceived as an[4] engaging software entity that humans can talk to. It appears everywhere, from old ancient HTML pages to modern advanced social networking websites, and from standard computers to fashionable smart mobile devices. Chatbots talk in almost every major language. Their language (Natural Language Processing, NLP) skills vary from extremely poor to very clever intelligent and helpful.

This Chatbot works on the Deep Learning Frameworks (Artificial Neural Networks) and is capable of understanding English as well as the Hindi Language. The Chatbot can reply as text as well as by Speech.

1.2 Motivation for the Idea

I am a Tech Enthusiast and like to solve real-life problems using technology. While reading about the developments in Communication Systems for Intelligence and the military, I thought of developing a ChatBot System. I researched the topics and frameworks which were needed to develop this application and started my work on it. Here is one link of a video on YouTube, which motivated me a lot :

http://www.youtube.com/watch?v=JF_HXTQ7Quo

Chapter 2

REQUIREMENTS ANALYSIS

2.1 Operating System Requirements

The ChatBot application works on all Operating Systems (Linux, Windows, MacOS).

The minimum requirements for Windows OS is Windows XP.

2.2 Application Requirements

The list of required packages and applications are as follows:

- Python 2
- Python Package Index (pip)
- Flask
- Artificial Intelligence Markup Language (AIML)
- Pyttx3 Package of Python[5]

Chapter 3
[6]IMPLEMENTATION

3.1 Methodology

The Chatbot is learning through the corpus on which it is trained. The Corpus is a dataset which contains the recorded instructions and conversation methods on which chatbot functions. The Chatbot takes the input from the primary user and the data is stored in the SQL Database. There are various algorithms in which database is searched and the chatbot gives the required output. The text output is being converted to speech output by python libraries. As the SQL database is constantly being updated, the chatbot learns through its previous conversations as well.

To improve the User Interface/User Experience (UI/UX), I have integrated this chatbot to a web application designed in the Django framework of Python. The server-side code (Backend) is in Python and the client side code (Frontend) is in HTML markup along with CSS and JavaScript.

3.2 Tools Used

I have used Structured Query Language (SQlite3) to build the database and used Python programming language to access this database. Most of the part of the code is written in Python, only the commands used to interact with the database are in SQL. I installed chatterbot, which is an open source cross-platform package, consisting mainly of the initial structure of the program. Also, I installed pyttsx3 package of python library which enables the text-to-speech feature in the chatbot.

The chatbot is currently being trained on a dialogue corpus. The interaction of the commands with the database of Bot is done by using Artificial Intelligence Markup Language (AIML). The Chatbot is currently operational as a web application that is rendered using Flask package of Python. The Front-end interface of the application is developed using Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript.

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Chapter 4

RESULTS AND ANALYSIS

4.1 Screenshots

Image 1: Interaction of ChatBot and User on Console in English

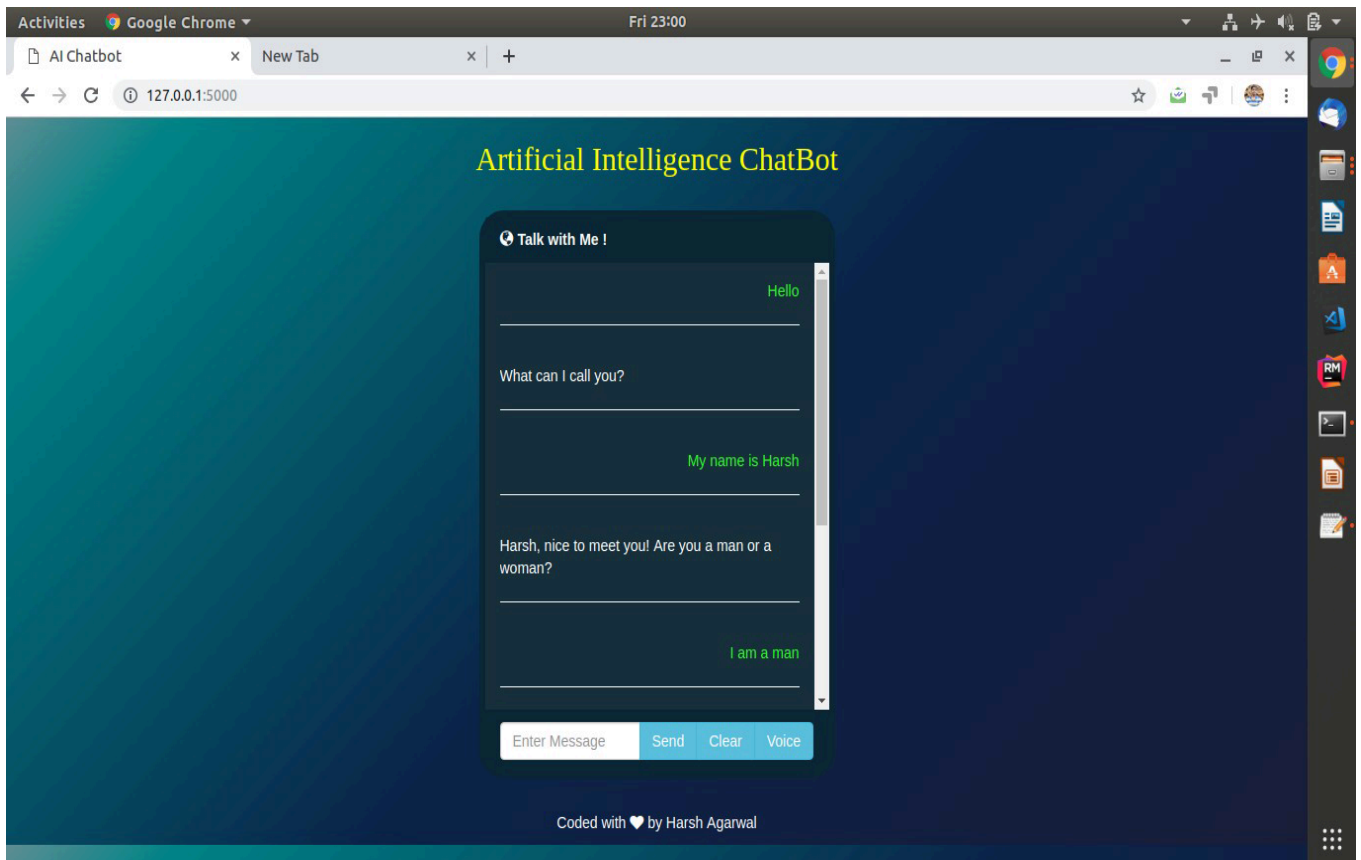**Image 2:** Interactio[7]n of ChatBot and User on Console in Hindi

Image 3: Interaction of Us[8]er and ChatBot on Web Application

4.2 Source Code

The Project is open-sourced and available on GitHub. The complete source-code with project installation guide can be found at https://github.com/harshagrwl/Chat-Bot.

Chapter 5

CONCLUSION

5.1 Conclusion

The main objectives of this project were to develop a chatbot that can answer questions of the user in speech as well as text form. It can be also used by students of NITK to get information about different events, fests, holidays, etc in the college.

Background research took place, which included an overview of the conversation procedure and any relevant chat bots available. A database was developed, which stores information about questions, answers, keywords, logs and feedback messages. An updated system was designed, developed and deployed to the web server. Also after received feedback from the users, extra requirements were introduced and implemented.

5.2 Future Scope

I have planned to incorporate the following features in the ChatBot in the future.

- **Voice Recognition** – The ChatBot will be able to recognize the person with his/her voice and will interact with that person according to previous data of that person stored in the database.[9]

- **Face Recognition** – The ChatBot will be able to recognize the person with his/her face. ChatBot will be given camera access and it will scan the faces of users.

- **Hardware Integration** – The ChatBot software will be integrated with the wireless hardware system which will make it a complete communication system.

- **Android Application** – Currently the ChatBot is accessible as a Web Application. An Android application of the ChatBot will be developed.