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VOICE-BASED AI CHATBOT FOR ONLINE FOOD ORDERING

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ABSTRACT
In today's fast-paced digital world, online food ordering has become more popular. However, traditional systems depend a lot on manual interaction via mobile apps or websites, which may not be convenient for everyone. Voice-based AI chatbots offer a simpler and friendlier solution by letting customers place orders with voice commands.

This research focuses on creating a voice-based AI chatbot for online food ordering. The system uses speech recognition and natural language processing (NLP) techniques to understand user commands and respond intelligently.

The chatbot can take orders, suggest menu items, and confirm transactions in real-time. Machine learning models help improve accuracy and user experience. The study shows that voice-based systems can make the ordering process easier, reduce human effort, and improve accessibility for users. This method boosts customer satisfaction and supports automation in the food service industry.

KEYWORDS: *Voice Recognition, Artificial Intelligence, Chatbot, Natural Language Processing, Online Food Ordering, Machine Learning, Speech-to-Test, Conversational AI.*

INTRODUCTION
Ordering food online has become normal thanks to the rise of smartphones and internet services. Most food delivery platforms need users to browse menus and select items manually, which can take time and be inconvenient. Voice-based AI chatbots offer a smarter option by letting users interact with natural speech. Users can simply say their order, and the chatbot processes the request and responds accordingly. This technology is especially helpful for elderly users, visually impaired people, or anyone who prefers hands-free interaction. Artificial Intelligence (AI), Natural Language Processing (NLP), and Speech Recognition are key in developing these systems. These technologies allow the chatbot to understand user intent and give accurate responses. This research aims to design and implement a voice-based chatbot system that makes online food ordering easier and improves user experience**.**

OBJECTIVES OF THE STUDY
The main goals of this research are: -

- To understand the concept of voice-based AI chatbot.
- To study the role of NLP and speech recognition in chatbot systems.
- To design a system for voice-based food ordering.
- To improve user interaction and accessibility.
- To reduce manual effort in online food ordering.

LITERATURE REVIEW
Voice-based systems and chatbots have attracted significant attention in recent years. Earlier systems relied on simple rule-based responses and had limited functions. With advancements in AI and NLP, modern chatbots can grasp natural language and provide intelligent responses. Research indicates that speech recognition systems like Google Speech API and NLP frameworks such as Dialog flow and Rasa are popular in chatbot development. Machine learning models enhance accuracy by learning from user interactions. Several studies have looked at chatbot uses in customer service, healthcare, and e-commerce. However, voice-based food ordering systems are still developing and need to improve in understanding various accents and languages.

METHODOLOGY
- **Data Collection**
  Get voice input data from users
  Use conversations about ordering food as practice
- **Data Preprocessing**
  Use speech recognition to turn speech into text
  Get rid of noise and words that don't matter
  Normalize text so it can be processed
- **Features Extraction**
  Some important features are:
  User intent (order, cancel, change)
  Words that are important (food items, amount)
  Understanding the context
- **Technologies Used**
  API for recognizing speech

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Natural Language Processing (NLP)
Models for Machine Learning
Framework for chatbots (Rasa / Dialogflow)

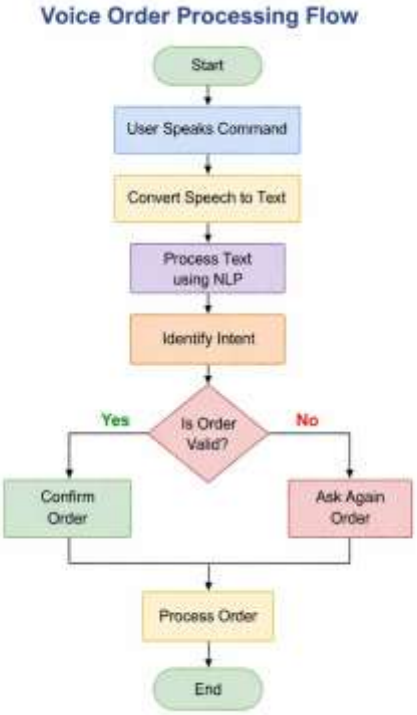
- **System Implementation**
  The user gives a voice command.
  The system turns speech into text.
  NLP works on the input
  The chatbot makes a response.
  The order has been confirmed and is being processed.

FUTURE SCOPE

The future scope of this system is promising and includes several enhancements.
Future improvements can make the system work better and be easier to use.
Some of the things that can be done are:

- The system can be used with languages so more people can use it.
- The system can use learning models to get more accurate results.
- The system can process voice commands in time with hardly any delay.
- The system can be used with payment systems.
- The system can give users recommendations based on what they like and prefer so the future scope of the system is to make all these improvements and make it more useful for users.

FLOWCHART OF SYSTEM



RESULTS

The voice-based chatbot successfully processed user voice commands and turned them into food orders. The system accurately recognized common food items and commands. It reduced the time needed for placing orders and made things easier for users.

The chatbot could handle multiple user requests, like adding items, removing items, and confirming orders. The system's performance improved with training, allowing it to respond more accurately over time

DISCUSSION

These results show that a voice-activated AI chatbot can contribute to the improvement of on-line food ordering. It minimizes the need for typed inputs and establishes a more user-friendly approach of conversation.

The main challenges with such a system consist in its dependence on the speech recognition function which may be affected by background noises or mistakes of speech recognition and the variety of languages. Thus, training should be an on-going process in order to overcome all sort of accents and understand complex sentences.

In spite of its limitations, the developed system remains a performant and ergonomic solution to the future of food ordering applications.

CONCLUSION

Voice-based AI chatbots are a new and effective way to order food online. The system lets users easily place orders by voice command by combining speech recognition and natural language processing. The research shows that these kinds of systems can make things easier to use, less work, and more satisfying for users. You can add the chatbot to mobile apps and websites to make ordering easier. The study shows how important AI is for making old systems smarter and more interactive.

REFERENCES

1. *D.Jurafsky and J. H. Martin, Speech and Language Processing, 3rd ed., 2020.*
2. *S. Russell and P. Norvig, Artificial Intelligence: A Modern Approach, 3rd ed. Pearson, 2016.*
3. *Google,"Google Cloud Speech-to-Text Documentation." [Online]. Available: https://cloud.google.com/speech-to-text*
4. *Google,"Dialogflow Documentation." [Online].Available: https://cloud.google.com/dialogflow*
5. *Rasa Technologies, "Rasa Open-Source Documentation." [Online]. Available: https://rasa.com/docs*