WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Chat Bot Based on Voice Recognition System

[1]Nikhil Mayadevi Rajkumar Paswan, [2]Atul Chandrakala Sahebrao Pawar, [3]Amol Lata Dharma Masmar, [4] Gopal Mamata Lalbabu Rai, [5]Rohan Ujjawala Pravin Aher, [6]Pradip Meera Govardhan Mahajan, [7] Arati S. Purkar

[1],[2,3],[5]Student,[6]Assistant Professor,[7]Assistant Professor
Sandip Polytechnic, Nashik, Department of Electrical Engineering

ABSTRACT

In this project, we are developing an embedded system-based audio player for making a smart interactive robot with voice command recognition.

This robot may also be used for events or at the entry gates of institutes to market products or give details or guidance about systems..

Keywords: Audio Player, Robot, Voice Command, Guidance.

Introduction

Voice recognition technology has transformed our interactions with devices, offering a convenient and straightforward method for controlling them. This technology is prevalent in smartphones, smart speakers, and home automation systems, enabling users to issue commands through simple]spokenphrases with ease.

Voice or speaker recognition refers to a machine's or program's capability to receive and interpret dictation or comprehend and execute spoken instructions. The prominence of voice recognition has surged alongside the advancement of artificial intelligence (AI) and intelligent assistants, such as Amazon's Alexa and Apple's Siri.

These systems empower consumers to engage with technology merely by speaking, facilitating hands-free requests, reminders, and other uncomplicated tasks. Voice recognition can differentiate and identify voices through automatic speech recognition (ASR) software. Some ASR applications necessitate initial training by users to enhance the accuracy of speech-to-text conversion. These systems analyze various aspects of a voice, including frequency, accent, and speech patterns.

It is important to note that while voice recognition and speech recognition are often used interchangeably, they represent distinct concepts. Voice recognition focuses on identifying the speaker, whereas speech recognition is concerned with understanding the content of the spoken words.

Survey and Specification

1. Voice Recognition Module is a compact easy-control speaking recognition board. It is a speaker-dependent module and supports up to 80 voice commands. Any sound could be trained as a command. Users need to train the module first before recognizing any voice command. Voice commands are stored in one large group like a library. Any 7 voice commands in the library could be imported into the recognizer. It means 7 commands are effective at the same time.
2. This board has 2 controlling ways: Serial Port (full function), and General Input Pins (part of function). General Output Pins on the board could generate several kinds of waves while the corresponding voice command was recognized.
3. Specifications of Voice Recognition Module
    - Voltage: 4.5-5.5V
    - Current: <40mA
    - Digital Interface: 5V TTL level UART interface

- Analog Interface: 3.5mm mono-channel microphone connector + microphone pin interface
- Recognition accuracy: 99% (under ideal environment)
- Support a maximum of 80 voice commands, with each voice 1500ms
- Maximum 7 voice commands effective at the same time
- 5) Home Automation Using Chatbot and Voice Assistant Bhavyasri Kadali1, Neha Prasad1, Pranaya Kudav1, and ManojDeshpande1,1Department of Computer Engineering A.C. Patil College of Engineering, 2020

Easy Control: UART/GPIO

- User-control General Pin Output

Dimensions:

- Size :30mm x 47.5mm

Package includes

- 1 X Voice Recognition Module
- 1 X Microphone
- 4 X Female to female jumper

Discussion and Methodology

Speech recognition is a technology field that captures, interprets, and computes a voice to transform it into text (TTS). Once the voice has been transformed into text, it can be applied to different applications, from speech dictation, to command-voice controllers, health monitoring, robotics, and artificial intelligence or accessibility, among many others.

The applications are as follows: -

1. Voice search: Voice search is, arguably, the most common use of voice recognition. Reportedly, in 2022, in the US alone, 135.6M users would have used a digital assistant at least once a month.Moreover, according to a PWC survey, using a voice assistant to search for something was the preferred method of 71% of participants. 1

2. Speech to text:

› Voice recognition enables hands-free computing. Its use cases include, but are not limited to:

- Writing emails
- Composing a document on Google Docs
- Automatic closed captioning with speech recognition (i.e., YouTube)
- Automatic translation
- Sending texts

3. Voice commands to smart home devices: Smart home devices use voice recognition technology to carry out household tasks, such as turning on the lights, boiling water, adjusting the thermostat, and more.

4. Customer service: Voice recognition is an important AI application in customer service. Voice recognition is an effective call center service solution, available 24/7, and is cheaper than live reps.

› The common use cases of speech recognition in customer service are:

- Interactive Voice Response (IVR): It is one of the oldest speech recognition applications and allows customers to reach the right agents or resolve their problems via voice commands.
- Analytics: Transcription of thousands of phone calls between customers and agents helps identify common call patterns and issues.

Acknowledgment

We like to express our sincere gratitude to Prof. P. M. Dharmadhikari, Principal of Sandip Polytechnic, Nashik, for their support, which made this research possible. We are also thankful to Prof. V.S.Patil, H.O.D of the Electrical Engineering Department for providing the necessary resources and facilities to conduct this research. A special thank you to Prof. Pradip Govardhan Mahajan and staff members, technical staff members of the Electrical Engineering

Department for their valuable technical support and insightful discussions, which greatly enhanced the quality of this work. And the greenhouse gases without which this study would not have been feasible. Finally, we would like to thank our colleagues in the Electrical Department for their continuous encouragement and constructive feedback throughout the research process. Last but not least thanks to all my friends and the people who are directly or indirectly related to our paperwork planning.

References

1) VOICE CHATBOT FOR HOSPITALITY SAGINA ATHIKKAL1 and JOHN JENQ2 1Department of Computer Science, Montclair State University, NJ USA, June 2019

2) An intelligent web-based voice chatbot, Manoj Lall Tshwane University of Technology, June 2009]

3) Voice bot: Customized Voice-Chat bot using Natural Language Processing R Sharanya, Rithin S Reddy, S Asha and Naveen Chandra Gowda School of CSE, REVA University, Bangalore, India, 2021

4) AI-BASED FAQ CHATBOT WITH VOICE ASSISTANCE A. DURGA DEVI MADAM 1, Kattula Suma Latha 2, 1Assistant professor, MCA DEPT, Dantuluri Narayana Raju College, Bhimavaram, Andhra Pradesh, 2024

5) Home Automation Using Chatbot and Voice Assistant Bhavyasri Kadali1,