

# Conversational AI Whatsapp Chatbot

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**Abstract**—In today's fast-paced world, choosing the right career path is a daunting task. The process is often tedious, overwhelming, and time-consuming. In this paper, we propose a conversational AI-based WhatsApp chatbot that provides career information in an interactive, simple, and efficient manner. The chatbot is designed to provide information on various main and sub-stream careers, such as basic educational qualifications, required skills, average pay scale in rupees, pros and cons, future scope and opportunities, competition, market trends, etc. The information is categorized and simplified to cater to the needs of diverse users. The chatbot is built using state-of-the-art natural language processing techniques and is designed to be user-friendly, making it accessible to a wide audience. The proposed solution aims to bridge the gap between students and the complex world of career choices, providing them with relevant and valuable information to make informed decisions.

## I. INTRODUCTION

In recent years, advancements in natural language processing and artificial intelligence have revolutionized the field of chatbots. With the exponential growth of messaging platforms such as WhatsApp, there has been an increasing demand for chatbots that can provide personalized information and assistance to users. In this paper, we propose a state-of-the-art conversational AI-based WhatsApp chatbot that provides comprehensive career information in a simple, interactive, and efficient manner.

The proposed chatbot is designed to provide users with valuable insights into various mainstream and sub-stream careers, including basic educational qualifications, required skills, average pay scale in rupees, pros and cons, future scope and opportunities, competition, market trends, and more. The chatbot is built using advanced natural language processing techniques that allow it to understand user queries and respond with relevant and accurate information in real-time.

To ensure the chatbot's effectiveness, we leveraged large and diverse datasets to train the underlying machine learning models. Additionally, we incorporated state-of-the-art algorithms for intent recognition, named entity recognition,

and sentiment analysis to ensure that the chatbot could interpret user queries accurately and respond appropriately. Our proposed chatbot offers several advantages over traditional methods of career information gathering, such as browsing through online resources or consulting career counsellors. It is available 24/7, is easily accessible through WhatsApp, and is designed to be user-friendly, making it accessible to a wide range of users. The categorization and simplification of information make it easy for users to digest, understand and make informed decisions about their career choices.

Our proposed chatbot provides a sophisticated and comprehensive solution to the problem of career information gathering, leveraging the latest advancements in artificial intelligence and natural language processing. Through this paper, we present the methodology used to develop the chatbot, present the results of our experiments, and discuss the potential applications and implications of this technology.

## II. WORKING

The chatbot utilizes the voiceflow software, which encompasses various technologies such as NLP, a knowledge base, dialogue flow management, and response generation. The chatbot accesses the career information and recommendations from the voiceflow software, which is based on the student's queries, profile information, and the knowledge base. The chatbot then generates personalized and relevant career guidance for the student.

The response is then presented to the user through the user interface, completing the cycle of interaction. The voiceflow software acts as the core engine of the conversational AI-based chatbot, integrating and orchestrating the various components necessary for its functioning. It seamlessly combines natural language processing, knowledge management, dialogue flow management, and response generation to provide an interactive and informative experience to the student.

The user interface serves as the gateway for the student to interact with the chatbot. It can be designed as a web page, mobile application, or messaging platform, offering a user-friendly interface for inputting queries, providing information, and receiving responses.

As the student interacts with the chatbot, the NLP algorithms within the voiceflow software process the natural language input, extracting important entities and determining the intent behind the user's message. This enables the chatbot to understand the user's queries and responses accurately. The knowledge base, integrated within the voiceflow software, acts as a repository of career related information. It contains a wide range of data collected from various sources and is regularly updated to ensure the latest information is available.

The chatbot accesses this knowledge base to retrieve relevant information and provide accurate responses to the student's queries. The dialogue flow management component within the voiceflow software enables the chatbot to maintain context throughout the conversation. It remembers previous interactions, adapts to changes in the conversation topic, and handles multi-turn conversations.

This ensures a smooth and coherent dialogue between the chatbot and the student. The response generation algorithms within the voiceflow software generate informative and contextually relevant responses based on the student's queries and the information retrieved from the knowledge base. These algorithms ensure that the chatbot delivers accurate and valuable career guidance tailored to the student's specific needs and interests.

Voiceflow software, with its integrated technologies, serves as the backbone of the conversational AI-based chatbot designed for students to obtain career information. It enables the chatbot to understand natural language, access a vast knowledge base, manage the flow of conversation, and generate personalized and relevant responses. This comprehensive system provides an interactive and informative platform for students to explore and receive guidance for their career paths.

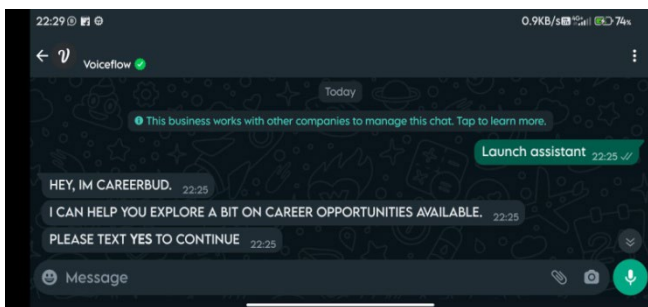


Fig 1: Working of chatbot model in whatsapp



Fig 2: Chatbot generating multiple main stream careers

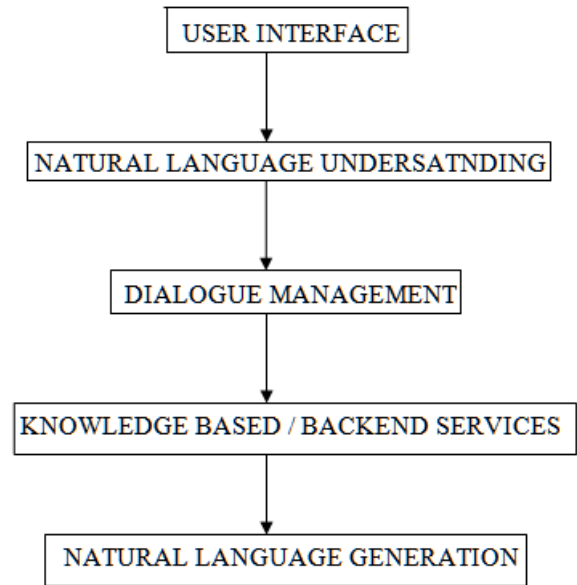


Fig 3: Block diagram of chatbot

User Interface:

The chatbot has a user interface where students can interact with it. This can be a web interface, a mobile app, or integration platforms like whatsapp.

Natural Language Understanding

- Speech-to-Text: If the chatbot supports voice input, the user's speech is converted to text using a speech recognition system.
- Text Preprocessing: The input text is preprocessed by removing noise, special characters, and converting it to a standardized format.
- Intent Recognition: The NLU component identifies the intent behind the user's query, such as career exploration, job search, or specific career-related questions. It uses techniques like machine learning, natural language processing (NLP), or rule-based approaches.
- Entity Extraction: The chatbot identifies important entities from the user's query, such as desired job roles, skills, or educational background, to provide personalized responses.

#### Dialog Management:

- Context Tracking:** The chatbot maintains the context of the conversation, keeping track of previous user queries and responses to ensure a coherent conversation.
- State Management:** The dialog manager manages the state of the conversation, determining the current stage and deciding which actions to take based on the user's intent and context.
- Response Generation:** The dialog manager generates appropriate responses based on the user's intent and the system's knowledge base.

#### Knowledge Base/Backend Services:

- Career Information Database:** The chatbot would have access to a comprehensive career information database that contains details about various job roles, industries, educational requirements, salary ranges, and career paths. This database can be created by compiling information from reliable sources or by partnering with career guidance platforms.
- Natural Language Processing (NLP) Libraries:** The chatbot can utilize NLP libraries and tools to enhance its understanding and provide accurate information.

#### Natural Language Generation (NLG):

- Response Generation:** The NLG component generates human-like responses based on the user's query, utilizing the information from the knowledge base, APIs, and the context of the conversation.
- Personalization:** The chatbot can personalize responses based on the user's profile, educational background, or preferences, providing tailored career recommendations.

### III. CONCLUSION

The conversational AI-based WhatsApp chatbot presented in this paper offers a novel and effective solution for providing career-related information to users. The chatbot leverages natural language processing and machine learning algorithms to provide relevant and accurate information in an interactive and conversational manner.

The simplified and categorized approach to presenting career-related information not only makes it easily comprehensible for users but also enhances their decision-making capabilities. The chatbot's ability to provide comprehensive and up-to-date information on various main and sub-stream careers, along with their respective pros and cons, future scope, and market trends, makes it a valuable tool for students, professionals, and job-seekers alike.

Overall, the proposed chatbot demonstrates the potential of conversational AI-based technologies to address the increasing demand for personalized and user-centric information delivery systems. We hope that this study will inspire further research in this field and pave the way for the development of more sophisticated and intuitive conversational AI-based chatbots in the future.

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