Farmassist: Whatsapp Chatbot for Agricultural schemes

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ABSTRACT:

The "FarmAssist: WhatsApp Chatbot for Agricultural Schemes" is an innovative digital solution aimed at streamlining access to a multitude of agricultural schemes for farmers. This chatbot operates within the familiar WhatsApp platform, serving as an interactive and informative resource hub. It furnishes farmers with insights into diverse government and private agricultural initiatives, aiding them in navigating, understanding, and making informed decisions about various available schemes. By offering a user-friendly experience, it acts as a catalyst in empowering farmers, fostering agricultural growth, and ensuring equitable distribution of resources within the farming community. The Agricultural Scheme Database acts as the central repository of scheme-related information. It stores comprehensive data ranging from scheme names and descriptions to eligibility criteria and application procedures. When prompted by the chatbot's database queries, this repository swiftly retrieves the requested information, forming the backbone of the response generation process.

INTRODUCTION

Revolutionizing Farming Practices and Access to Information. In the dynamic world of agriculture, timely information and expert guidance can make all the difference. Our WhatsApp Chatbot is here to bridge the gap between farmers and vital agricultural resources, empowering them with instant access to valuable insights and support right at their fingertips. Leveraging the widespread usage of WhatsApp among farmers worldwide, our chatbot provides a user-friendly interface for querying crop information, weather forecasts, pest control measures, market prices, and agricultural best practices. Powered by cutting-edge AI algorithms tailored to agricultural contexts, our chatbot delivers personalized recommendations and solutions, helping farmers make informed decisions and optimize their yields. Whether it's a smallholder farmer in rural areas or a large-scale agricultural enterprise,

our WhatsApp Chatbot serves as a virtual agricultural extension officer, offering guidance, support, and resources to enhance productivity and sustainability. Join us in revolutionizing agriculture through innovation and accessibility with our WhatsApp Chatbot.

Real-Time Agricultural Insights: Our WhatsApp Chatbot provides farmers with access to real-time agricultural insights, including weather updates, crop-specific information, and soil health recommendations. By staying informed about weather patterns and soil conditions, farmers can make proactive decisions to optimize planting, irrigation, and harvesting schedules.

Crop Management Support: From crop selection to post-harvest handling, our chatbot offers comprehensive support throughout the crop cycle. Farmers can receive guidance on selecting suitable crop varieties, managing pests and diseases, implementing sustainable farming practices, and maximizing crop yields.

Market Intelligence: Access to accurate market prices and demand trends is crucial for farmers to make informed selling decisions. Our chatbot aggregates market data from various sources and provides farmers with up-to-date information on commodity prices, market trends, and trading opportunities, empowering them to negotiate better prices and plan their sales strategically.

LITERATURESURVEY

In 1950, Alan Turing asked the question 'Can machines think?" Turing conceptualized the problem as an "imitation game" (now called the Turing Test), in which an"interrogator" asked questions to human and machine subjects, with the goal of identifying the human. If tie human and machine are indistinguishable, we say the machine can think.

In 1966, Joseph Weizenbaum at MIT created the first chatbot that, arguably, cane close to imitating a human.

In order to provide relevant responses, ELIZA would first detect the keywords in an input sentence and then match those keywords against a pre-programmed set of rules. The development of increasingly intelligent chatbots has advanced since ELIZA.

A bot named PARRY, developed in 1972 by Stanford University's Kenneth Colby, mimicked a paranoid schizophrenia sufferer.

In 1995, Richard Wallace created AL.I.C E, a significantly more complex bot that generated responses by pattern matching inputs against <pattern> (input) <template> (output) pairs stored in documents in a knowledge base. These documents were written in Arttificial Intelligence Markup Language (AIML), an extension of XML, which is still in use today: ALICE is a three-time winner of the Loebner prize, a competition held each year which attempts to run the Turing Test, and awards the intelligent chatbot.

. The architectures and retrieval processes of these bots take advantage of advances in machine leaning to provide advanced "information retrieval" processes, in which responses are based on analysis of the results of web searches. Others have adopted "generative" models to respond; they use statistical machine translation (SMT) techniques to 'translate" input phrases into output responses. Seq2Seq an SMT algorithm that used recurrent neural networks (RNNs) to encode and decode inputs into responses is a current best practice.

Benchmarking of existing expertise is a very important element of formative research, so the past few weeks The group has been doing a literature review of recently published works that address the subject. We've been aggregating these resources into a best pratice library — a chatbot book club of sorts. Since we've committed to a transparent process, it nukes sense to publicly these resources and acknowledge that as the project progresses, they will be crucial to the team.

Much research has focused on involving recognition rates of the human voice and the technology is now approaching viability for speech based human computer interaction Speech Interaction splits into more than one area including: speech recognition, speech

Parsing NLP (Natural Languageprocessing) keyword identification Chatbot design/personality, artificial intelligence etc. A chatbot is a computer software that can use natural language speech to have a conversation with a human. We live in the age of intelligent machines these days.

With the advancement of artificial intelligence, machine learning and deep learning, machines have staffed to impersonate as human. Chatbots, which are conversational software agents that are triggered by natural language processing, are a prime example of this type of device. This paper provides an overview of current chatbots and the methods used to develop them. It tie similarities, differences and limitations of the existing chatbots. We compared 11must popular chatbot application system along with functionalities and technical specification Research showed that nearly 75% of customers have explained poor customer

service am generation of meaningful, long and informative reponses remain a challenging task .In the past, methods for developing Chatbots have relied on hard-written rules and templates. With the rise of deep leaning these models were quickly replaced by end-to-end neural networks. More specifically, Deep Nural Networks is a powerful generative-based model to solve the conversational response generation problems. This work carried out a thorough analysis of the most recent literature, looking at more than 70 chatbot-related articles that were released in the previous five years. This study combined a review of the literature with a comparison of a few chosen studies based on adopted terminology. This study also discussed the reasons for the lack of consideration that current chatbot models have while producing responses and how this detracts from the quality of the conversation.

PROPOSED METHOD

The proposed system for a WhatsApp chatbot dedicated to agriculture schemes aims to streamline communication and deliver valuable resources to farmers efficiently. It encompasses several key components designed to enhance user experience and provide comprehensive support to the farming community.

Firstly, the chatbot interface on WhatsApp will feature an intuitive conversational flow, powered by advanced natural language processing (NLP) algorithms. This interface will enable farmers to interact with the chatbot seamlessly, asking questions, seeking advice, and accessing information about various agricultural schemes.

Behind the scenes, a robust chatbot framework will manage the conversation flow and handle user queries effectively. This framework will be customizable, allowing for the integration of specific features tailored to the needs of the agriculture sector, such as scheme information, advisory services, market updates, and weather forecasts.

The system will leverage databases to store user data, chat logs, and relevant agricultural information securely. These databases will enable the chatbot to provide personalized responses based on user preferences, historical interactions, and contextual data.

Integration with external APIs will be a crucial aspect of the proposed system, facilitating access to real-time data sources such as weather APIs, market APIs, and government databases containing information about agricultural schemes and subsidies. This integration will ensure that the chatbot can deliver timely and accurate information to farmers, empowering them to make informed decisions.

Additionally, the proposed system will incorporate features to enhance user engagement and accessibility. Multimedia elements such as images, videos, and audio clips will be integrated into the chatbot interface to provide visual and auditory assistance. Multi-language support will ensure that the chatbot is accessible to farmers from diverse linguistic backgrounds.

Furthermore, the system will include analytics and monitoring tools to track user interactions, measure engagement metrics, and gather insights into user behavior. These tools will enable continuous improvement of the chatbot's performance and optimization of its effectiveness in serving the needs of farmers.

BLOCK DIAGRAM

The block diagram of a WhatsApp chatbot for agriculture schemes delineates the system's architecture and workflow, illustrating how users interact with the chatbot and how it processes their queries. At the core of the diagram is the WhatsApp platform, serving as the conduit through which users send messages to the chatbot. Upon receiving a message, the chatbot application springs into action. This application is multifaceted, comprising several key components: a message receiver that intercepts incoming messages from the WhatsApp platform, a natural language understanding (NLU) module that parses and comprehends user intents, a dialog management system that orchestrates conversation flows, and a data access layer that interfaces with external databases or APIs to retrieve information about agriculture schemes. As users engage with the chatbot, their messages are deciphered, the conversation context is maintained, and appropriate responses are generated based on the information gleaned from the data access layer.

External databases or APIs serve as repositories of information about various agriculture schemes, eligibility criteria, and application processes, ensuring that the chatbot remains current and informative. Additionally, an analytics and monitoring component tracks user engagement and performance metrics, providing insights for optimization and improvement. Administrators oversee the system through an administration interface, enabling them to manage settings, update conversation flows, and monitor the chatbot's performance. In sum, the block diagram encapsulates the intricate interplay between users, the WhatsApp platform, the chatbot application, external data sources, and administrative oversight, culminating in a dynamic and effective tool for disseminating information and support related to agriculture schemes.

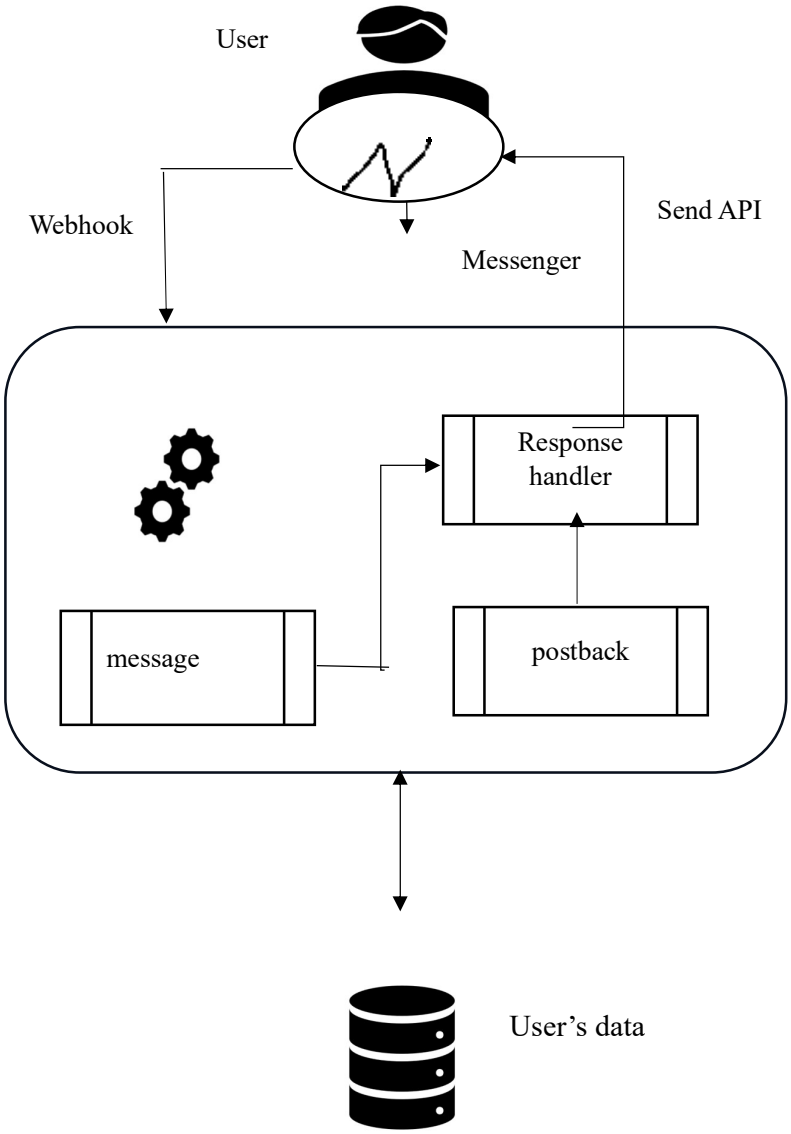

Fig.no 1 Architecture chatbot

RESULT

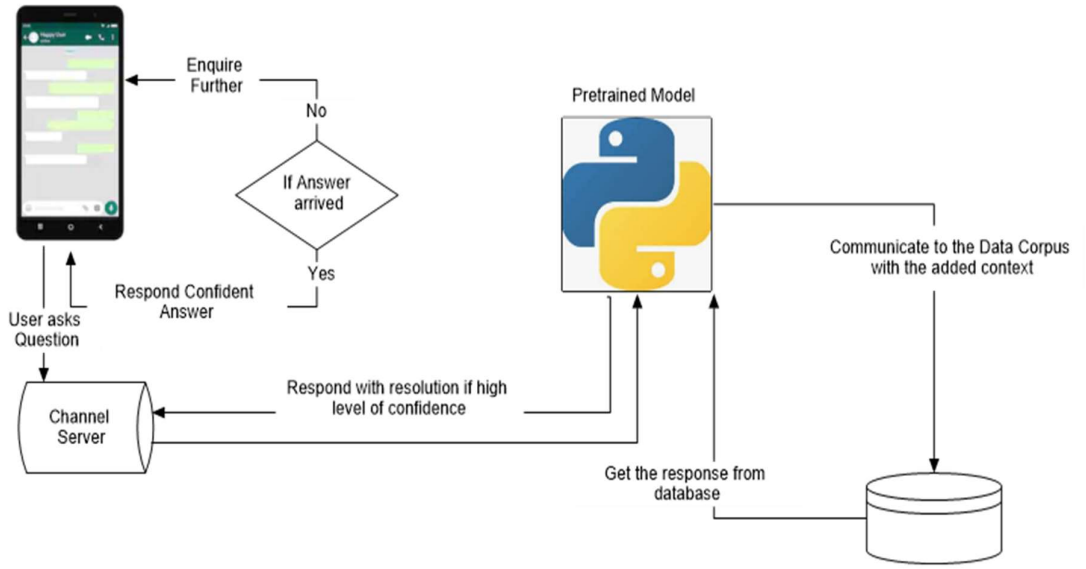

Fig no 2: System design of chatbot

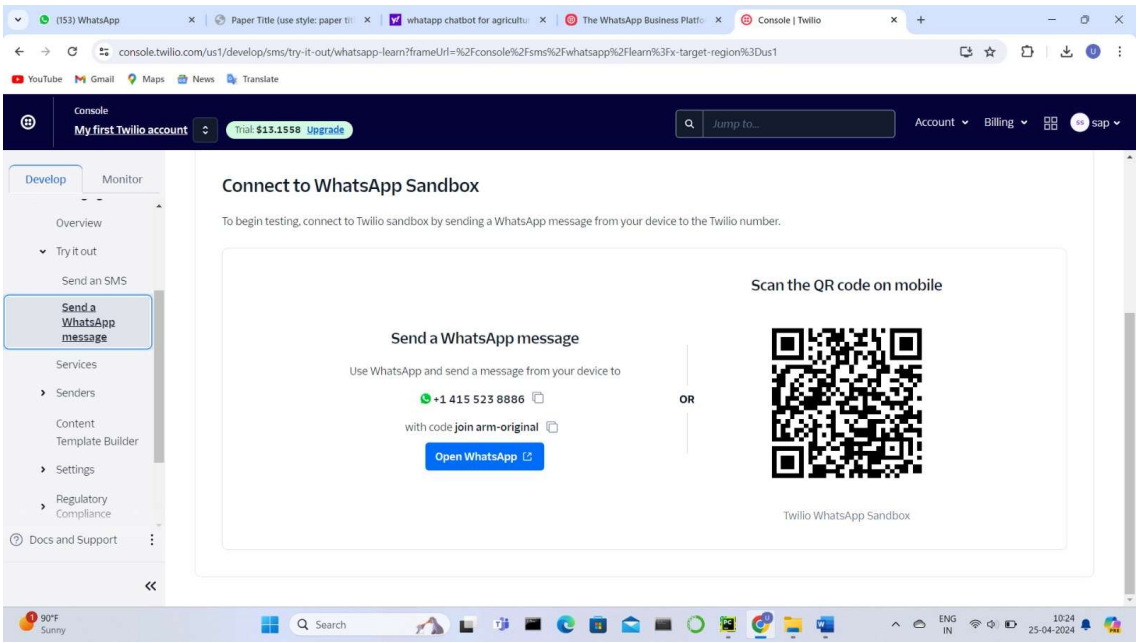

Fig no 3: Connection to whatsapp sandbox

Fig no 4: Connection to twilio

A chatbot dedicated to agriculture helps farmers by giving them up-to-date information on market prices, crop care, pest management, and weather. It helps identify diseases, provides guidance on optimal farming methods, and responds to frequently asked questions about agriculture, all of which help farmers make better decisions and be more productive.

CONCLUSION:

These days, In conclusion, WhatsApp chatbots have emerged as powerful tools with vast potential to revolutionize agriculture schemes and support services for farmers. Through their accessibility, convenience, and personalized interactions, chatbots offer farmers a convenient platform to access information, assistance, and resources related to agriculture schemes directly from their mobile devices. As advancements in technology continue to unfold, the future scope of WhatsApp chatbots in agriculture schemes is promising. With the integration of advanced AI capabilities, multimodal interaction, and emerging technologies such as AR, blockchain, and IoT, chatbots are poised to enhance agricultural extension, decision-making, and transparency on aglobal scale. Moreover, collaborative platforms and partnerships will enable chatbots to connect farmers with a diverse ecosystem of stakeholders, fostering knowledge sharing and innovation. By embracing these opportunities and addressing challenges such as digital divide and data privacy, WhatsApp chatbots have the potential to empower farmers, drive sustainable agricultural development, and contribute to food security and livelihoods worldwide.

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