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Farmer's Voice Chat Bot with AI/ML

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ABSTRACT: In the year 2020, agriculture contributes about 19.9% of India's GDP and employed about 60% of the country's population which makes it important part of the country's economic growth. Till 2018, it was about 15.41% only but now it has been increased with the help of the latest technologies like IOT, AI, CHATBOT etc. The proposed system is a mobile application which was developed to assist the farmers by two ways, the voice bot and the suggestion bot. To respond the farmer's queries in the multi-language, we have created an agricultural multi linguistic voice bot using Google translator, pysttsx3 and Google search engines.

KEYWORDS: Suggestion Bot, Voice Bot, Agriculture, fertilizer choice, crops, weather, Video Steganography - Video Streams, SLSB (Secured Least Significant Bit), Fuzzy logic, & Neural Network Algorithm, disease prediction, CNN, pre-trained model, deep learning, agriculture.

I. INTRODUCTION

In 2050, the global population is projected to hit more than nine billion people, necessitating a 70% rise in agricultural production to meet demand. Current agricultural intensification strategies necessitate high energy inputs, and the market needs high-quality food. Scarcity of labor and rising labor costs, as well as crop failures due to pests, lack of rainfall, climatic fluctuations and loss of soil fertility, and fluctuating market prices in agriculture commodities, have all had a major negative effect on the socio-economic status of this backbone population. On the other hand, rising population has increased demand for food grains, resulting in agricultural product price inflation. In India, the number of people protected by the National Food Security Act 2013 was 95.18 percent in 2015-16. In India, the number of beneficiaries protected by the National Food Security Act 2013 increased to 99.51 percent in 2019-20, up from 97.62 percent in 2018-19. During the time under consideration, the percentage of beneficiaries protected under the National Food Security Act 2013 increased to 99.51 percent in 2019-20. We can improve smart farming practices using artificial intelligence to reduce farmer losses and increase yield. Artificial intelligence systems can collect vast amounts of data from government and public websites, as well as real-time monitoring of various data through IoT (Internet of Things), which can then be accurately analyzed to help farmers solve all of the unknown issues they face in the agriculture sector.

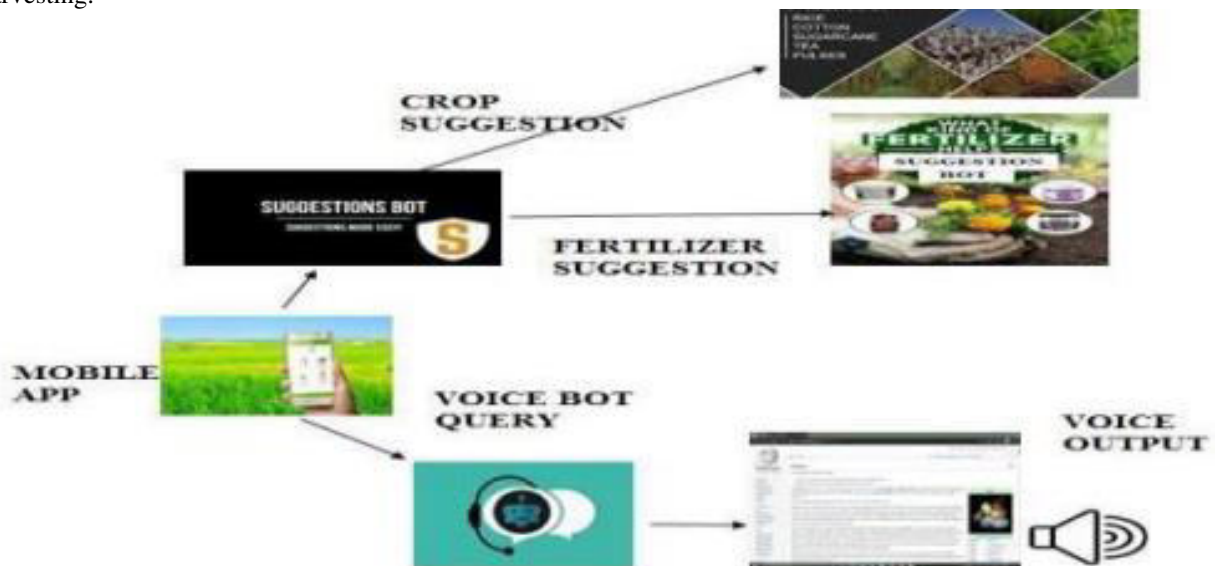
II. RELATED WORK

Using an interactive querying technique, the system will teach new generation farmers about agriculture knowledge. Speech synthesis aids people with learning disabilities and literacy issues in effectively using the device. The questions defined intents that users may be interested in, examples that users use to describe a particular purpose, and entities that are different artifacts that contribute to an intent. The AIML (Artificial Intelligence Markup Language) was used to train a model that predicts purpose based on a given example. Since the ChatBot was built on a cloud platform, the client end does not need any additional computing resources in the paper [1]. This huge disparity can be bridged by giving farmers better access to knowledge and expert advice. We conducted an study with 34 farmers near Ranchi, India, with the aim of determining the system's usability, acceptability of the information given, and gaining a better understanding of the user population's specific preferences, needs, and challenges. A comparison analysis was conducted using two separate modalities: audio-only and audio+text. Our findings reveal how users' expectations for interaction modality are influenced by literacy level, digital literacy, and other factors. A conversational agent has the ability to effectively meet the knowledge needs of farmers at scale, according to our findings. [5]. The web application

for smart agriculture assistant and crop price prediction assists farmers in determining the reference yield for each crop and fertilizer recommendations for crops based on soil sample testing for crops that can be grown. The farmer is recommended secondary and micronutrients for soil, and EAgri shopping would assist the farmer in purchasing better agricultural products. Crop price predictions and regular live crop prices can aid farmers in better crop marketing. Crop price prediction would forecast crop prices for the next 12 months, allowing farmers to know what to expect when harvesting or selling their crops[6]. Aims to develop a voicebased answering system that allows farmers to get answers to their questions about tomato diseases through interactive voice chats. The term "conversational chat bot" refers to a voice-based answering system. In today's world, several Artificial Intelligence-powered response techniques are in use. Chabot for agriculture, is in high demand. This method was created with Dialog Flow, a tool that creates conversational interfaces for mobile apps, websites, and IoT devices. It was created to answer Factoid type questions, List type questions, and Yes/No questions about tomato diseases[7].

III. PROPOSED ALGORITHM

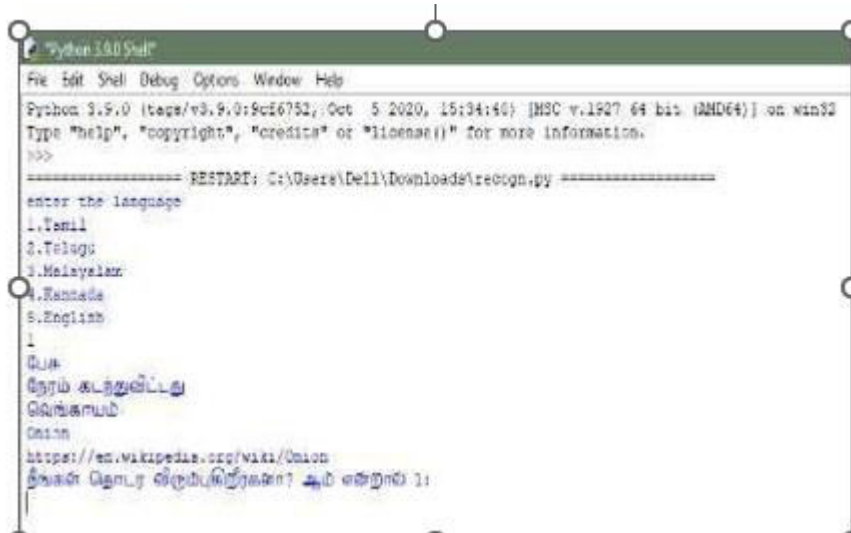
Chatbot are conversational virtual assistants which automate interactions with end users. Artificial intelligence powered chat bots, using machine learning techniques, understand natural language and interact with users in a personalized way. In early days chat bots were used mostly in retail, travel, media or insurance players. Agriculture could also leverage this emerging technology by assisting farmers with answers to their questions, providing advice and recommendations on farming related problems. This conversational assistant uses Natural Language Processing techniques to understand the user queries in their natural language. This will make the system understand even the grammatically not well defined sentences as input queries. The user queries undergo the pre-processing stage where the query is first tokenized into words, then the stop words like a, is, the, etc., are removed so that it would not contribute to the probability of classifying the queries based on their respective classes and then the stemming process is carried out where the words are converted to their root words. The words are converted to a bag of words and then converted to a vector form so that they can be processed efficiently by the classification algorithm. The bot is then trained with the training dataset. Based on the training set data, a neural network is constructed and error is optimized using the gradient descent algorithm. The test data set undergoes the same pre-processing stages, classification and neural network construction. The class with the highest probability is iterated to get the accurate results. The system uses the speech synthesis Web API to provide voice based response. It also uses the prediction algorithm 'ARIMA' to predict the future cost of the agricultural products using the moving average technique, so that the farmer can plan their activities prior to harvesting.



IV. SIMULATION RESULTS

MOBILE APP: This is the GUI screen for mobile app where farmer will select the voice bot or suggestion bot. **Voice Bot,** In the Figure 3 farmer selecting the regional language and voice input is given then it will be converted to text and query will be answered by voice bot using websites. In responds to the input given the bot will retrieve the

webpage related to the query has shown in the Fig-4. we also have **Suggestion Bot** for helping the farmers to select crops based on weather and soil. Suggestion bot can also give suggestion of fertilizer to the crop if the we give soil test rating. The final output will be crop along with fertilizer has shown in the Fig



```

Python 3.8.0 Shell
File Edit Shell Debug Options Window Help
Python 3.8.0 (tags/v3.8.0:9c26752; Oct 5 2020, 15:34:46) [MSC v.1920 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Devi\Downloads\recogn.py =====
enter the language
1. Tamil
2. Telugu
3. Malayalam
4. Kannada
5. English
1
Onion
https://en.wikipedia.org/wiki/Onion
Ammonium Sulphate Super Phosphate NPK
    
```

Fig-1 Output Of Voice To Text Synthesizer



Fig-2 Result Of Crop And Fertilizer Suggestion

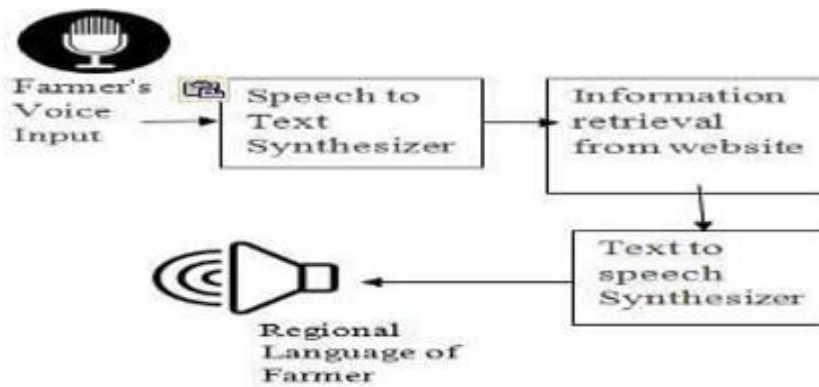


Fig-2 block diagram of voice bots

V. CONCLUSION AND FUTURE WORK

Farmer's Assist Voice Bot System Will Help Farmer Communities By Answering Queries Related To Agriculture. Via This App, The Farmer Will Be Able To Access The Agricultural Information As Well As Localized Information Including Weather Forecasts, Best Crop For Plantation And Fertilizer. We Have Implemented The Multilingual Chat Bot That Includes A Voiceover And An Entity Extraction For The Query Of The Farmer. This System Will Allow Farmers Of Different Regions Who Speak Different Languages To Ask Questions At Any Time. The Voice Bot Will Respond To The Queries Of The Farmer In Their Regional Language And Also Suggest The Crop,Fertilizer Based On Weather And Soil Which Allow The Modern Farming Technology To Reach A Larger Number Of Farmers. As The Future Work, We Have Planned To Identify The Diseases In Crops And Their Remedies[3][4]. Further, We Can Also Suggest The Best Plant And The Harvest Time Based On The Market Price, Climate And Soil[2].

REFERENCES

1. Ekanayake, J. and Saputhanthri, L. (2020) "E-AGRO: Intelligent ChatBot. IoT and Artificial Intelligence Enhance Farming Industry", *AGRIS on-line Papers in Economics and Informatics*, Vol. 12, No. 1,pp. 15-21. ISSN 1804-1930. DOI 10.7160/aol.2020.120102.
2. Teodor Stan,Neculai Munteanu,Gabriel-Ciprian Teliban,Alexandru Cojocaru and Vasile Stoleru "Fertilization Management Improves the Yield and Capsaicinoid Content of Chili Peppers" *Agriculture* 2021, 11(2), 181; <https://doi.org/10.3390/agriculture11020181>
3. Tanhatalaviya, Dharashah, "Implementation of Artificial intelligence in Artificial intelligence in agriculture for



- optimisation of irrigation and application of pesticides and herbicides" Artificial Intelligence in agriculture volume 4,2020,pages 58-73
4. Basavarajs, Anami, Naveen, N. Malvade surendrapalaiah,"Deep Learning Approach For Recognition And Classification Of Yield Affecting Paddy Crop Stresses Using Field Images" Artificial Intelligence In Agriculture Volume 4, 2020, Pages 12-20.
 5. Mohit Jain, Pratyush Kumar, Ishita Bhansali, Q. Vera Liao, Khai Truong, and Shwetak Patel. 2018.FarmChat: A Conversational Agent to Answer Farmer Queries. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 2, 4, Article 170 (2018).
 6. Sachin R Inchal,. Vani Ashok Smart Agriculture Assistant And Crop Price Prediction. International Research Journal Of Engineering And Technology Volume: 06 Issue: 08 | Aug 2019.
 7. T.Cynthia, P. Calduwel Newton Voice Based Answering Technique for Farmers in Mobile Cloud Computing International Journal of Scientific Research in Computer Science Applications and Management Studies Volume 7, Issue 3 (2018).
 8. AgroXpertus, B. (2014). BLGG AGROXPERTUS. Retrieved 30 July,
 9. 2014, from <http://blgg.agroxpertus.nl/>.



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