Application of Intelligent Recommendation for Agricultural Information- E-kirishi

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Abstract

Artificial intelligence makes it possible for machine to learn from experience, adjust to new inputs and perform human like task. Agriculture is slowly becoming digital and artificial intelligence in farming provide crop and soil monitoring, insect and plant detection etc. Several developing concerns exist in the Indian agricultural sector. From 1951 to 2023, agriculture's share of the GDP in India fell steadily as the country's economy diversified and expanded. Although Indian agriculture has attained grain self-sufficiency, the production is resource demanding, cereal-centric, and biased towards certain regions. India's resource-intensive agricultural practices have also sparked severe sustainability concerns. Most of the time, there are lots of resources accessible to help farmers to thrive in their work, but there is a big knowledge gap between the farmers and those offered programs. In this paper we try solve those problems with the help of today's technology in various aspects.

Our paper is solely aimed at the development of farmers and agricultural businesses through smartphones, and it commits to make selling and buying agriculturally based products, simple and appropriate. The goal of this paper is to support farmers. Its goal is to provide farmers with profits. This application's central concept is an online auction. It enables farmers to get the greatest price for their crops. The app's user interface is straightforward, and it offers data on crucial issues including buying and selling crop seeds, weather forecasts, the detection of plant diseases, science and technology news, government initiatives, and AI-based chatbots.

Keywords : Krishi, Agriculture, Android, Marketplace, Chatbot.

I. INTRODUCTION

India's economy is heavily dependent on agriculture; in other words, farmers are India's backbone. Agriculture development has a significant impact on India's economic well-being. The technology of agriculture has advanced greatly throughout the world, but in India, the majority of farmers are utterly ignorant of the prices at which their products are sold. Due to a lack of knowledge about the true prices of the items, farmers frequently struggle to achieve the right price for their commodities and struggle to sell their goods on time, which causes them to lose a lot of money. To sell their goods in the market, farmers enlist the aid of intermediaries. Because of the involvement of the intermediaries, the farmers do not receive adequate compensation for their output. Farmers lose a large portion of their income due to the involvement of the intermediaries. This results in significant losses for the farmers while benefiting the intermediary. A new mobile app "E-Kirishi" will prove helpful for farmers in this regard. In our system overcome the problems. The solution provided by our implemented system are listed below Chatbot with interactive nature where user can ask their queries or information they needed and we provide them solution as a result. Weather forecast that provides current weather information on time. Information about Inventory of food grain. Also we are providing the flexibility that the farmer can edit their profile and can edit the quality of products and provide the description about the product. Plant disease prediction is the feature that we have added into a implemented system where farmer can scan the image of bad plant or leaves and they will predict and provide them which kind of disease could be there. Science and technology news provides the news for the opportunities to explain science related to current news. It provide the latest technology news that can be very useful and also provide new schemes to the farmers. Government Yojana provide the available current government schemes to the farmers . It consists features such Current news, agriculture related information , crop care advices, product launch details and much more.

II. REQUIREMENTS

Software Requirements:
Visual studio code: -
It is used to develop computer programs including websites, web apps, web services and mobile apps. Visual Studio empowers you to complete the entire development cycle in one place. For example, you can edit, debug, test, version control, and deploy to the cloud. With the diversity of features and languages in Visual Studio, you can grow from writing your first piece of code to developing in multiple project types.

Keywords : Artificial intelligence, Agriculture, Internet of things, Android, Chatbot.
Firebase: -
Firebase is a set of hosting services for any type of application. It offers NoSQL and real-time hosting of databases, content, social authentication, and notifications, or services, such as a real-time communication server.

Dart:-
A command-line interface (CLI) for creating, formatting, analysing, testing, documenting, compiling, and running Dart code, as well as working with the pub package manager.

Hardware Requirements:
RAM:-
8GB RAM is recommended.
Processor:-
Minimum i5 Processor with 10th Generation is recommended.
Operating System:-
Windows 8 or more.

III. EXISTING SYSTEM

1. Currently, the farm harvest is recorded to monitor farm productivity and shared with local purchasers to maximise the value of your farm products.
2. Automated threat prediction of disease and pests and smart control measure recommendations
3. Farmers and consumers have a direct relationship

IV. PROPOSED SYSTEM

1. In this proposed system, E-Krishi is an application that will provide users/farmers with up-to-date information.
2. Farmers will learn about recent government initiatives that will be very beneficial to their crop production.
3. This application allows users and farmers to access online information on crop prediction, fertilisers and recommendations, equipment, weather forecast, and science and technology news
4. The proposed system detects plant diseases and is simple to use because it includes a chatbot.

V. FLOWCHART

Fig.1. System Flowchart
E-Krishi :
- The API provides an Interface so that each link and feature and menu and special offer on the server is specifically detailed in code written to the API so that the app can know how to access it.

- E-Krishi has 8 modules :
  - **Module 1 – Sign In/Sign Out**
    Installation and downloading after an application, user has to sign in or register to the app for getting logged in. Sign In module accepts the user details and sends verification mail to respective Gmail account thus proceeds to grant permission to use an application. 
    Sign out menu allow user to exit from the app also known as logged out. The privacy and security of seller as well as customer data will automatically go inactive after the particular period of logging out.
  - **Module 2 – Seller**
    Seller module consists of two parts - Adding new product and Managing the product. Adding new product contains uploading your product on application. It contains adding product details such basic details (like product title, variant, original price, discount price, details of seller), describe product (like highlights and description), uploading of image (includes selection of product type) and search tags to find the product. 
    Managing products helps you to manage details of product, editing and deleting of product. Seller can edit product details like increase in price rate if a particular product price hikes in today's market by swiping left to the product. Also seller can delete the product if it is not available by swiping right.
  - **Module 3 – Customer**
    Customer plays an important role in using the application. Because of customer interaction with the application the AI gets new queries to find the respective output or new results. The customer searches for the product in search bar and after processing the query AI displays the respective or related product to the search. After choosing a product customer is headed for the transaction of product.
  - **Module 4 – Plant Disease Detection**
    As AI plays important role in agriculture. It helps farmers to detect the plant disease. CNN (Convolution Neural Network) is used for detection of plant disease. It allows user to take picture or upload it from gallery. After taking picture, CNN take small patches of image and finds rough matches in the same position of two images. Thus detect the disease.
  - **Module 5 – Chatbot**
    Chatbot is the program that simulates and assesses human conversation in written. It interacts with user queries and gives immediate decisions or suggestions on it. AI in chatbot helps to recognize the user's intent and offer appropriate replies.
  - **Module 6 – Science and Technology News**
    To find and get aware of all current news related to Science and Technology. It makes farmers life easier and better as it informs about markets prices, quantity of product in demand, etc. Due to this their is increase in productivity and efficiency in market.
  - **Module 7 – Weather**
    E-Krishi provides weather forecast in the app for Indian farmers. Weather forecast gives up-to-date forecasting of weather in realtime. This module gives exact location of current user.
  - **Module 8 – Government Yojnas**
    The Government has rolled out a number of new schemes for the benefits of farmers. Government of India accords high priority for the well-being of the farmers and is executing several farmers a decent standard of living to make active agriculture sector and to raise their financial conditions.

VI. APPLICATIONS
1. The Ekrishi app gives farmers more control and provides them with knowledge that can improve their crop productivity.
2. It is an online marketplace for farmers that connects them with farming retailers and fulfillment services.
3. The Ekrishi application offers chat services for farmers to address their agricultural-related questions.
4. It gives farmer information on all government schemes, science and technology news, farm mechanization, health and lifestyle, crop care, and images and videos relevant to agriculture.
5. The weather forecast is additionally provided based on the user's location or a search.

VII. FUTURE SCOPE
1. The Google Maps API option will be added in the future for better search.
2. Adding a voice-activated user interface like Google Assistant.
3. Raising the number of languages support.
4. It is also possible to make payment.
5. Soil detection is also possible in the future.

**VIII. CONCLUSION**

In this project, we strive to give farmers many services via an Android application. The app’s UI and design have been developed in such a way that a regular user can find it very simple to use because it incorporates typical use cases in the designs. The community element of the app encourages social interaction and group problem-solving in the local area. Also, it makes it simple to communicate with the market.

**IX. RESULT**

![Fig.2.1. Home Page](Image)

![Fig.2.2.1. Plant Diseases Detection](Image)

![Fig.2.2.2 Result](Image)

![Fig.2.3. Chatbot](Image)
Fig. 2.4: Government Yojanas

Fig. 2.5: Weather Forecast

REFERENCE

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