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Farm Finder for Easy Clearing Using Machine Learning

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Abstract

This application is one of the finest and helpful platforms for farmers. Nowadays the agriculture plays a vital role in human daily life, similarly now in organizations agriculture also plays very important role. It's like there is no work can complete without Plants. As we know our India is converting into a Digital India. Similarly now file sharing on Plants environment is important Plants play a significant role in survival of all organisms on earth. Because of this have fact, it's vital to confirm that the measures are taken to detect and mitigate disease in plants disease are major problem within the agricultural sector. Accurate and rapid detection of disease and pests in plants can help to develop an early treatment technique while greatly reducing economic losses. Now a day's disease detection has received increasing attention in monitoring large field of crops. Farmers can sell their farming products equipment's or tools, machines to other farmers with their fare price and other farmers can search for their required items for a fair price And they can contact the seller to their items. Farmer can upload their store farming equipments for farmers and farmers can easily sell their product and make them booked. Agents are other users of the system. Tractors, harvesters, threshing machines and other agricultural implements and equipment's are available in the custody of agents. Every district has their one agents. This section helps the farmers to contact the agents or the owners of the vehicles directly from nearby locations and book the relevant machinery for their requirements .Owners of the vehicle can update the status of vehicles or equipment's that are available or not. Farmers can add vehicles and equipment's into cart for future booking. Farmers can rate the service or give feedback about the service to the machinery owners in their profile. Admin can add and update latest

news related to farmers in the form of a notification. The notifications are provided to show the latest price and updates about agriculture that are helpful for farmers. Sell section is provided to add the product or machinery to the cart for future reference or booking and make easy to buy their required items . There is a report section. Farmers or other users can report system problems in the form of feedback. The admin can view feedback and update the system according to the needs of the users. Agents and farmers can easily Signup to this application by simple steps giving Name, Phone Number, and Username and setting a password and by simply Accepting the Terms and Conditions.

I. Introduction

Automation in disease detection and diagnosis is one in all the challenging research areas that gained significant attention within the agricultural sector. Traditional disease detection methods depend on extracting handcrafted features from the acquired images to spot the kind of disease. The self recognition of the disease is based on the identification of the symptoms of disease. So that information about the disease occurrence could be quickly and accurately provided to the farmers, experts and researchers of food products with pesticides Pests and Diseases results in the destruction of crops or part of the plant resulting in medicine, organic medicine, usage and links etc. Now Farmers can step-in into the future. Farming is the main sector cannot be avoided. Farmers can sell or buy their tools or equipment's, machines to other farmers with their fare price and other farmers, mill can search for their required items for a fair price and they can contact the seller to buy their items. This system makes everything lot easier than existing system. Farmers, shopkeepers can sell or buy their tools or equipment's, machines farmers with their fare price and other farmers, shopkeepers can search the items for a desired price. Farmers can get full fill their needs and everything can done through the internet. Now a day's everything is done through internet and this is called the future system of farming sector. Project “Farmers Choice” is a website for farmers to give a helping hand for resolving the above mentioned problems.

RESEARCH OBJECTIVE

The primary objective of this research is to develop and evaluate a comprehensive digital platform that facilitates the detection of plant diseases, promotes efficient resource sharing among farmers, and provides real-time agricultural updates. The platform aims to empower farmers by enabling early identification of plant diseases, improving access to affordable farming tools and machinery, and fostering connections with agents or other farmers for equipment rentals. The study also seeks to examine the effectiveness of the platform in enhancing agricultural productivity and reducing economic losses through digital intervention.

This research will focus on:

1. Developing a robust system for early detection of plant diseases and pests.
2. Creating a marketplace for farmers to buy, sell, or rent equipment efficiently.
3. Facilitating the easy sharing of agricultural information and updates relevant to farmers.
4. Investigating the impact of the platform on the agricultural sector, specifically in terms of productivity, cost reduction, and user satisfaction.

II . LITERATURE REVIEW

Agriculture has always been a vital sector for the economy and sustenance, and with the advent of digital technology, the agricultural sector is witnessing a significant transformation. Numerous studies have explored the impact of technological advancements on agriculture, focusing on areas such as disease detection, resource sharing, and farmer-to-farmer communication. This literature review highlights relevant research, examining digital tools and platforms that assist farmers in enhancing productivity, minimizing economic losses, and improving decision-making.

1. Digital Solutions for Disease Detection in Agriculture

The early detection of plant diseases plays a critical role in preventing crop losses. Recent advances in machine learning, artificial intelligence (AI), and sensor technology have provided new opportunities for precise disease detection. According to Polder et al. (2017), image-based disease detection systems using AI and machine vision can identify symptoms on plants, enabling farmers to address diseases in their early stages. These technologies can significantly reduce the time and labor required to monitor crops in large fields, ultimately improving crop health and yields.

Similarly, Barbedo (2013) reviewed various techniques for plant disease detection using digital image processing and noted that integrating these technologies with agricultural practices could help mitigate the global food security crisis by ensuring crops remain healthy. These studies affirm the importance of disease detection systems within digital platforms for farmers.

2. Digital Marketplaces for Agricultural Equipment

Digital platforms are increasingly being used to facilitate the buying, selling, and renting of agricultural equipment. Research by Smith and King (2020) indicates that online marketplaces improve farmers' access to essential machinery such as tractors and harvesters, reducing costs and increasing efficiency. Digital platforms simplify the process of obtaining farm equipment by connecting farmers with available resources, often in their vicinity, promoting the shared economy model.

III. PROPOSED SYSTEM

This application serves as one of the most beneficial platforms for farmers, helping them manage resources, detect plant diseases, and connect with others in the agricultural community. As agriculture plays a vital role in daily life, it is equally important in various organizations, where no task seems complete without the involvement of plants. In the era of **Digital India**, the focus has shifted to digitizing agricultural processes, particularly in ensuring the health and productivity of plants.

Importance of Disease Detection in Agriculture

Plants are essential for the survival of all organisms on earth, making it critical to safeguard them from diseases and pests. In the agricultural sector, timely and accurate disease detection is vital to avoid significant economic losses. By using modern techniques to monitor large fields of crops, farmers can detect issues early and apply the necessary treatments to protect their yield.

Marketplace for Farming Equipment

The platform allows farmers to buy, sell, or rent farming equipment and tools. Farmers can list items such as tractors, harvesters, and threshing machines at fair prices, while others can search for and purchase these items directly. This feature also allows equipment owners to update the availability status of their machinery, facilitating easier transactions for all users.

Role of Agents

Agents play a crucial role in the system. Every district has designated agents who manage agricultural machinery such as tractors and other equipment. Farmers can contact these agents to rent the necessary tools for their farming operations. Additionally, farmers can add these items to their cart for future booking, ensuring that they have access to the equipment when needed.

User Features and Feedback

The platform offers a rating and feedback system, where farmers can evaluate the service they receive from machinery owners. This ensures transparency and helps other users make informed decisions. Furthermore, farmers and agents can easily sign up to the platform with basic information such as name, phone number, and password, ensuring a quick and simple registration process.

Notifications and Latest Updates

The admin section of the application is responsible for providing timely notifications about agriculture-related news, such as updates on market prices and farming techniques. This information is crucial for farmers to stay informed and make better decisions regarding their agricultural practices.

Reporting System Issues

In addition to the marketplace and news updates, the platform includes a **report section** where

farmers and other users can provide feedback on system issues. The admin can review these reports and update the system to better serve its users' needs.

IV. ALGORITHMS

For a platform that involves plant disease detection, resource sharing, and marketplace functionalities as described in your initial paragraph, various algorithms are likely to be used. The key areas where algorithms come into play include disease detection, recommendation systems, search and ranking, as well as feedback and rating systems. Below is an outline of the typical algorithms used in each area:

1. Plant Disease Detection Algorithms

Plant disease detection relies heavily on **machine learning (ML)** and **image processing** algorithms. These algorithms help in identifying symptoms of diseases in plants based on images taken by farmers.

- Convolutional Neural Networks (CNNs):

  CNNs are commonly used for image classification tasks. In the context of plant disease detection, CNNs can be trained on a large dataset of plant images with and without diseases. The algorithm learns to identify patterns, such as spots or discoloration, which may indicate disease. Studies like those by Sladojevic et al. (2016) and Mohanty et al. (2016) have shown that CNN models, such as AlexNet, VGGNet, or custom CNN architectures, can achieve high accuracy in identifying plant diseases.

- Support Vector Machines (SVMs):

  SVMs can also be used in plant disease detection, particularly for classification tasks. An SVM works by finding the optimal boundary (hyperplane) that separates different classes (e.g., healthy vs. diseased plants). This method is often used when the dataset is smaller or more specific than what CNNs require.

- K-Means Clustering:

  This unsupervised learning algorithm can be applied to image segmentation tasks in plant disease detection. It groups pixels into clusters that correspond to different parts of the plant (e.g., healthy areas vs. diseased areas).

2. Recommendation Systems

For recommending relevant farming equipment or connecting farmers to agents, **recommendation systems** are essential. These systems often employ algorithms like:

- Collaborative Filtering:

  Collaborative filtering algorithms are used to recommend products (such as equipment) to farmers based on the preferences or past behaviors of similar users. This method can either be **user-based** (recommending items based on what similar users have liked or used)

or **item-based** (recommending items similar to the ones the user has previously interacted with).

- Content-Based Filtering:

This algorithm recommends products based on the specific characteristics of the items a user has shown interest in. For example, if a farmer has previously rented tractors, the algorithm will recommend other similar equipment.

- Hybrid Recommendation Systems:

A combination of collaborative filtering and content-based filtering is often used to provide more accurate recommendations. Hybrid models can mitigate the limitations of each approach by using both item features and user interaction history.

3. Search and Ranking Algorithms

The platform would need search and ranking algorithms to allow farmers to easily find relevant tools, equipment, or services.

- TF-IDF (Term Frequency-Inverse Document Frequency):

TF-IDF is a statistical measure used to rank items in search results. For example, if a farmer searches for "tractor," TF-IDF can rank the results based on how often the term appears in the listing (term frequency) and how important that term is across all listings (inverse document frequency).

- PageRank or Similar Algorithms:

Ranking algorithms like Google's PageRank can be applied in search functionality to prioritize results based on factors such as user feedback, relevance, and popularity of items.

- BM25:
- This is a probabilistic search algorithm often used in modern search engines for ranking documents. It improves upon TF-IDF by incorporating more complex matching, making it better suited for longer and more detailed queries.

4. Feedback and Rating Algorithms

For the rating system that allows farmers to provide feedback on services and products, the platform would use sentiment analysis and reputation-based ranking algorithms.

- Sentiment Analysis (Natural Language Processing):

Sentiment analysis algorithms are used to analyze written feedback from farmers. By identifying positive or negative sentiment, the platform can automatically rate services or flag issues.

- Reputation-Based Ranking:

An algorithm could be employed to adjust the overall ranking of service providers or

equipment based on the aggregate feedback. This could include **weighted average** methods, where more recent or relevant reviews are given greater importance than older ones.

5. User Authentication and Security Algorithms

To ensure a secure and user-friendly experience, algorithms for secure authentication would be implemented.

- Hashing Algorithms (SHA-256, bcrypt):

To secure passwords and sensitive user data, hashing algorithms are commonly used. These algorithms ensure that passwords are stored in a secure, non-reversible format.

- Two-Factor Authentication (2FA):

Two-factor authentication adds an extra layer of security by requiring users to verify their identity using a secondary method (e.g., OTP or biometric verification).

V. RESULTS AND CONCLUSION

Fig. 1:Shows home page

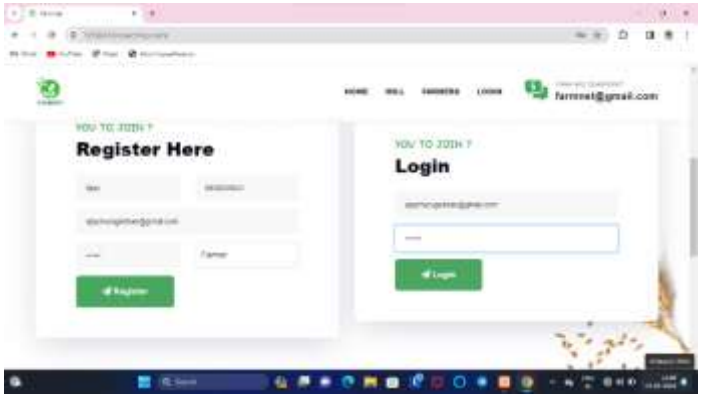

Fig. 2:Shows login page

VI .Conclusion

This Application help these people to sell their hand made products. The users can open this application to view the photos of their handmade items with price posted by the people. To buy these products user can contact the people by sending a text message to the admin that the user is interested to buy their products. If the product is not sold yet then users can send their postal address to the admin. The products are delivered by the users through post and the people can achieve the cash. By creating this application we can build a strong confidence in people that they can live their life independently. People can create their own profile and can post the pictures and details. They connect users to the people and help in coordination of the users with the people. People have their own personal profile to exhibit their products. They too can view and buy the products. The main purpose of this application is to provide financial support to the differently abled people and also to motivate and appreciate the work of the people. It provides direct financial support to the people. It provides maximum sale and profit for the products. No confusion in money transaction since it's through post. It counts for charity and business at the same time.

VII. REFERENCE

J. Gholap, A. Ingole, J. Gohil, S. Gargade, and V. Attar, (2012). Soil data analysis and attribute prediction utilising classification techniques. arXiv:1206.1557 is an arXiv preprint.

2. Sofianita Mutalib, S-N-Fadhlun Jamian, Shuzlina AbdulRahman, and Azlinah Mohamed, all in (2010). Soil Classification Using a Self-Organizing Map and k-means

3. Dr. D.V. Padole, Prachi Sharma, (2017). Soil Analyzer Design and Implementation Using IoT.

4. S.Pudumalar, E.Ramanujam, R.Harine Rajashree, C.Kavya, T.Kiruthika, and J.Nisha. Precision Agriculture Crop Recommendation System.

5. Avinash Kumar, Sobhangi Sarkar, and Chittaranjan Pradhan. Crop Identification and Pest Control Technique Recommendation System in Agriculture.

6. Nidhi H Kulkarni, G N Srinivasan, B M Sagar, and N K Cauvery (2018).

7. Meiqin Zhang, Shanqin Wang, Shuo Li, Jing Yi, and Peng Fu. P rediction and Map-making of Soil Organic Matter of Soil Profile Based on Imaging Spectroscopy: A Case in Hubei China.