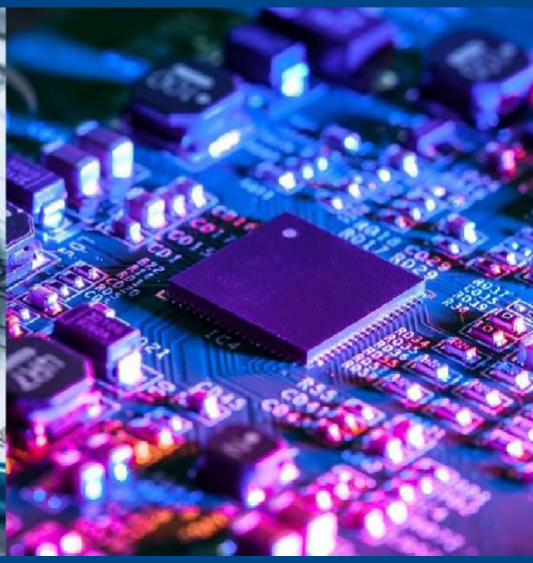
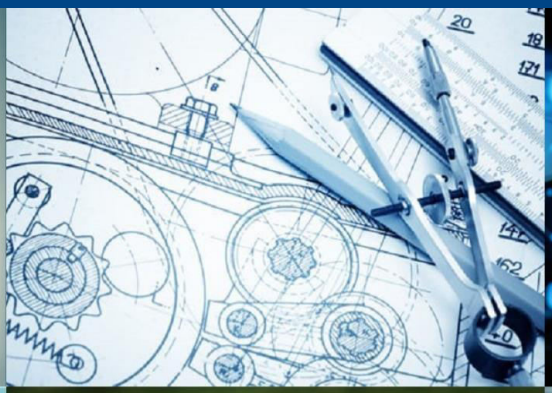
ISSN: 2582-7219

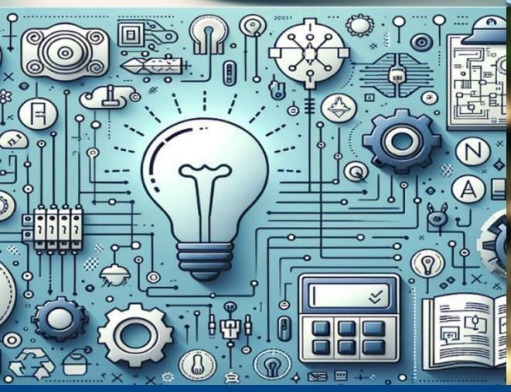




International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 12, December 2025

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812037

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Your Smart Farming Assistant using Machine Learing

Pooja Sadappa Gavaroji, Dr. M Charles Arockiaraj

Student, Department of MCA, AMC Engineering College, Bengaluru India

Assistant Professor, Department of MCA, AMC Engineering College, Bengaluru India

ABSTRACT: Modern agriculture is threatened by erratic weather, wrong application of resources and the lack of a surrogate service equipped to help farmers without delay and expert guidance. These problems underline the requirement for technological solutions that are smart and that can help improve farming efficiency on a sustainable basis. This paper introduces Smart Farming Assistant,a smart such system is to serve farmers with information to help them decide wisely in determining the methods by which crops are cultivated, and thereby improve overall crop productivity.

The objective of the proposed system is to provide the most ideal options for crop selection and irrigation as well as fertilizer application by using multiple agricultural input parameters such as soil type, climate conditions, crop historical information and environmental conditions. The system also uses machine learning algorithms to predictively reduce the amount of uncertainty involved in selecting appropriate crops and determining potential yields. The system has been designed to be easy to use with a user interface.

KEYWORDS: Recruitment scam detection, machine learning, fake job detection, text classification

I. INTRODUCTION

The soil and agriculture are very important, to us. We need to take care of the soil and agriculture. Farmers who live in these areas have a time. They often have a time getting help from people who know what they are doing in agriculture. This is because professionals are not always available in these areas. Farmers really need advice on farming to help them with their farms. The farmers need this advice on farming to do their jobs better. Farmers have to make sure they are doing everything when it comes to farming.

Agriculture has a lot of problems. The weather is one issue. It changes all the time. Agriculture is affected by the weather because it is so hard to predict what the weather will do and that makes farming really tough, for the people who work in agriculture. The soil, in some places is really getting bad. This is happening because people are using the soil a lot and they are not taking care of the soil.

Agriculture is really having some problems because of the soil. The soil issues are making it tough for people who do farming. They have a time getting good results and it is not easy to predict what will happen. Although this method has proven successful before, it is now inadequate to cope with the increasing complexity of contemporary agricultural systems and the issues arising from shifting environmental circumstances

II. ARCHITECTURE IN WEBSITE

The Smart Farming Assistant website is made in a way so it works well and is easy to use. It has parts that work together like a team. The Smart Farming Assistant website has a part that users see a part that does the work and a part that stores information. Each part of the Smart Farming Assistant website can work on its own.

They all work together to make the Smart Farming Assistant website a complete solution. The Smart Farming Assistant website is reliable. Can handle a lot of work because of the way it is made..

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812037

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Then sends it to the parts of the system that need to work on it. The application layer does a lot of things too like managing who can use the system keeping track of what each user is doing and helping different parts of the system talk to each other. A database layer is used to store user information, historical inputs, and system-generated recommendations.

The application layer handles user requests and oversees communication among various components. The backend utilizes machine learning models for data analysis to produce farming recommendations. A database is utilized to safely keep user details and past information.They all work together to make the Smart Farming Assistant website a complete solution. The Smart Farming Assistant website is reliable. Can handle a lot of work because of the way it is made..

III. RELATED WORK

Through the years, the integration of technology within the agricultural sector has steadily progressed at various levels, and there is increasing focus on various productivity and sustainable solutions through technology. In the early years of agricultural assistance systems, the technology was mainly rule-based, and there was reliance on predefined thresholds and domain knowledge that helped agricultural farmers determine crop management through irrigation and pest control.

Even though these systems were effective for farmers and agricultural initiatives, they were not adaptable systems and lacked flexibility.With the development of data collection methodologies, it became imperative for the inclusion of statistical modeling and database-based solutions into agriculture decision-support systems.

These solutions allowed for the evaluation of crop yield data, rainfall, and soil data. Current trends include the development of crop recommendation systems that assess the nutritional content of the soil, the climatic conditions of the environment, and the geographical attributes of the land for the purpose of identifying the type of crop that will thrive.

IV. METHODOLOGY

The design of the Smart Farming Assistant is aimed at ensuring it takes crude data in agriculture and converts it into valuable advice in a planned, systematic way. Data is collected in the first stage, where information on soil, weather, planting history, and other details is gathered using qualified sources. Prior to analysis, data is cleaned in order to remove inconsistencies, incorrect values, and unnecessary information.

After this step, relevant features are selected depending on their significance to crop growth and productivity. Features relevant to crop growth and productivity are employed to develop modeling using various Machine Learning algorithms that can analyze data for patterns and connections. Various algorithms can be employed to select the best model that can be used for crop recommendation and estimating productivity

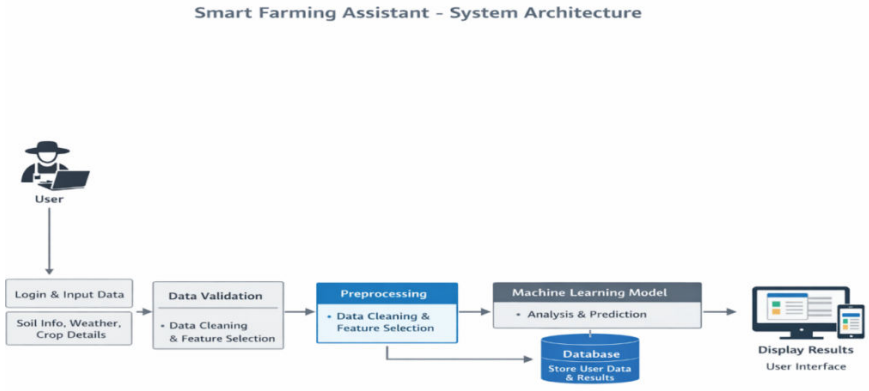


Figure 1: Flow Diagram Of Architecture.

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812037

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

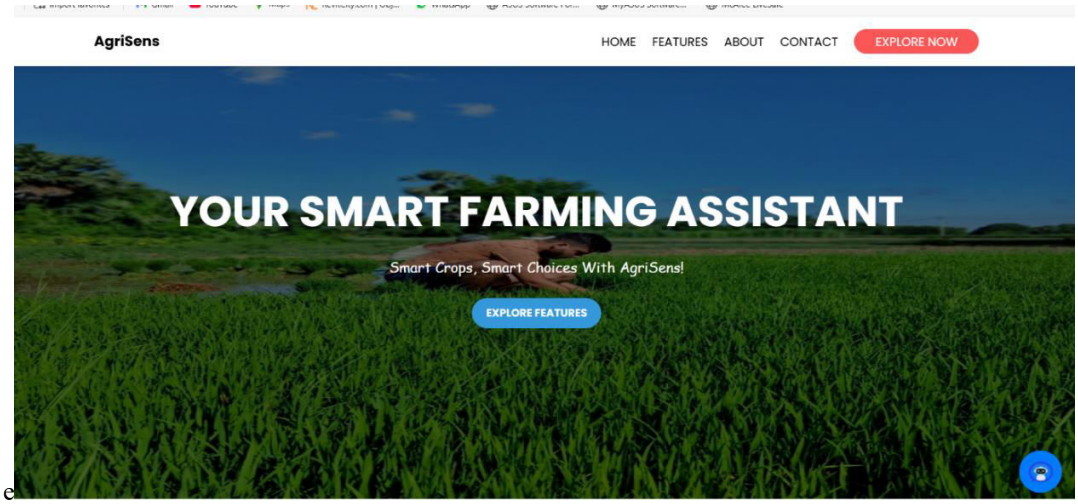
1. Problem Identification & Requirements Analysis:
Farmers these days have a lot of problems to deal with. These problems are all. They make farming less efficient and less productive. Farmers have to deal with weather soil that is not good anymore and they do not manage water and fertilizers in the right way. Farmers also do not have access to advice on farming when they need it especially in rural areas. Because of this farmers usually have to make guesses or do things the way they have always been done. Farming is, like that. Farmers do not always get the results from farming when they do things this way

2. Security & Validation Framework: The Smart Farming Assistant has a security system to keep user data safe and make sure the system works properly. The Smart Farming Assistant platform deals with information like user details and farm information. So it is really important to protect this data. The Smart Farming Assistant uses login methods to make sure only the right people can get into the system. When users enter information the Smart Farming Assistant checks it at points to ensure that wrong or bad data does not cause problems, with the system.

V. DETAILED OVERVIEW OF PAGES IN SCAMSHIELD

The ScamShield web application has lots of pages. These pages make it easy for users to find what they need. Users can then use the ScamShield web application to get what they want. The ScamShield web application is really useful, for users because it helps them navigate and find things without any trouble. The ScamShield web app is made up of pages that all do something. Each page of the ScamShield web app is useful. Helps make the ScamShield web application work really well.

1. Home Page: The Home Page is considered the gateway of the whole application. It serves as a briefintroduction about job recruitment scams, explains the significance of the ScamShiel system, and shows how the system assists the users in tracing malicious job adverts and



e

Figure 2: Landing page

2. Centralized Features: The Centralized Login Interface serves as the secure entry point for everyone utilizing the ScamShield system. This is the page that allows authorized users to correctly log in with their valid credentials to access any component within the system. The system facilitates this by offering a centralized method for logging.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

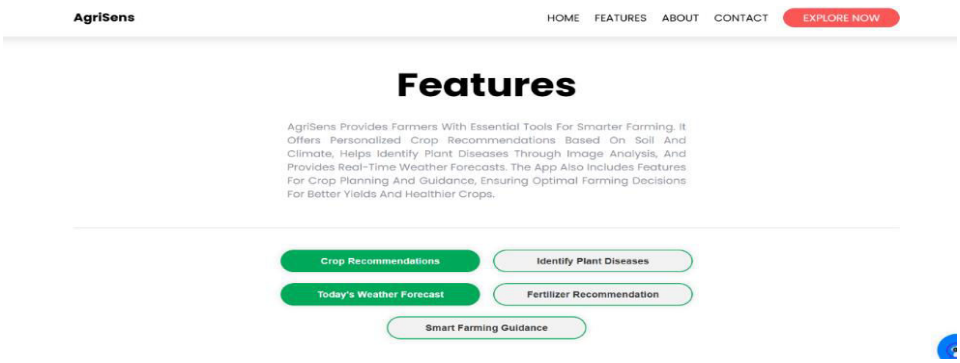


Figure 3: Centralized Features

3. User dashboard Page: The User Dashboard Page is the main workspace for users to carry out their duties after they are able to log in to the ScamShield system. It provides an all-inclusive overview of the services the platform offers to enable users to link to the scam-fighting resources available within the platform through the user login page. The page was designed to be clear and meaningful to help users navigate the platform even when they are beginners.

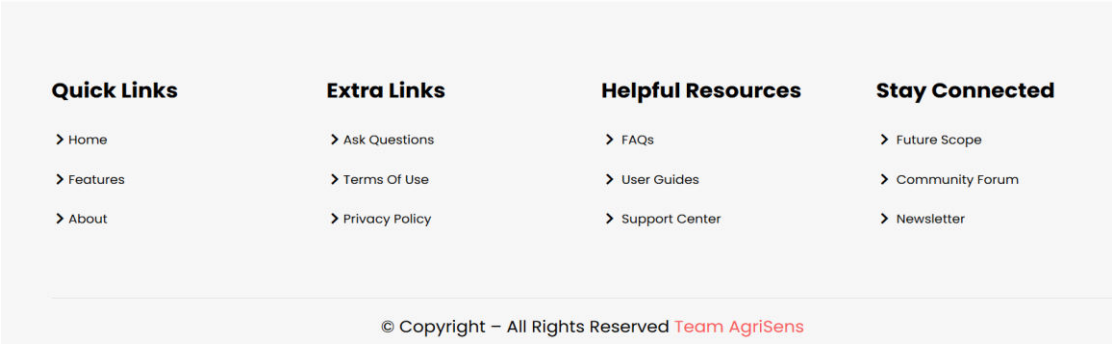


Figure 4: User dashboard

4. Smart Crop Recommendation: The purpose of the Smart Crop Suggestion feature aims to assist the farmer in identifying the optimal crops to cultivate using data analysis. The module considers all the key factors required in farming, which include soil characteristics, weather components, and the history of the previous crops. The use of machine learning helps the system identify patterns to match the land with the expected succeeding crops.

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812037

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

5. Disease Recognition page: The Crop Disease Identification Page allows the early detection of plant diseases through image-based assessment. This page enables farmers to send photos of the affected plant leaves or crop through a very simple and easy-to-operate, step-by-step interface. The uploaded images are then processed by the system, looking for visible symptoms such as spots, discoloration, or changes in texture.

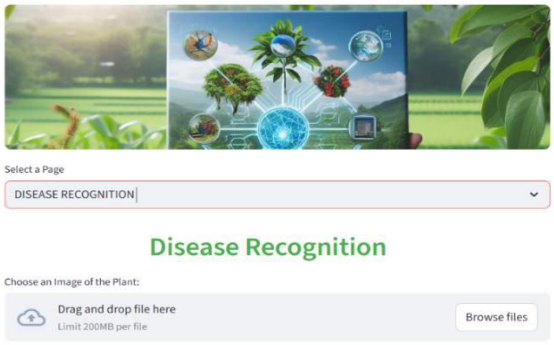


Figure 5: Fraud Blacklist Manage

VI. FUTURE UPDATES:

The Smart Farming Assistant can be enhanced in several ways to further improve its usefulness and reach. One possible update is the integration of real-time weather forecasting services to provide more accurate and location-specific recommendations. This would allow farmers to adjust irrigation and cultivation plans based on short-term climate changes.

Another future enhancement involves incorporating advanced sensor and Internet of Things (IoT) technologies. By connecting soil moisture sensors and environmental monitoring devices, the system can receive live field data and generate more precise recommendations. This would support automated irrigation and real-time crop health monitoring.

Benefits of This Structure within a Scamshield

Smart Farming Assistant provides a number of advantages, and these help a farmer become more productive and make effective agricultural decisions. One of the most important advantages is that of making effective agricultural decisions, and this is because the system provides decision support that is data-driven and based on the soil, climate, and crop information.

The system further assists in the optimal use of resources through the provision of adequate watering and fertilizer treatment for enhanced production. The production of increased yields will thus be achievable, and any potential loss that may occur due to inefficient planning or environmental factors will also be minimized. Through informed decisions on the type of crops to grow, potential risks will also be detected early.

Another important benefit is accessibility. The user-friendly web interface ensures that farmers with limited technical skills can easily use the system. Additionally, features such as disease recognition enable early detection and timely intervention, preventing large-scale crop damage. Overall, the Smart Farming Assistant enhances productivity, reduces financial risk, and supports sustainable agricultural development.

VII. CONCLUSION

The Smart Farming Assistant is a tool that helps with farming problems. It uses computers to look at farm data and make decisions. The Smart Farming Assistant helps farmers pick the crops and use water and other things wisely. It also helps find diseases in plants. The Smart Farming Assistant does not rely on trying things to see what works.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Instead the Smart Farming Assistant uses data to make farming better. The Smart Farming Assistant is a help to farmers because it uses machine learning and farm data to make good choices. The Smart Farming Assistant is good, for crop selection and resource management and disease detection. The system is easy to use so farmers can use it even if they do not know a lot about technology. Things like suggestions for what crops to plant and help with finding diseases in the crops make the crops grow better and reduce losses. The system checks itself to make sure it is working correctly and giving results when farmers use it on their farms

REFERENCES

1. Kamilaris, A. Kartakoullis, and F. X. Prenafeta-Boldú, “An overview of the big data analysis of applications in agriculture,” Computers and Electronics in at Agriculture, vol. 143, ss. 23–37,
2. S. R. Udaykumar and P. S. Kumar, “Techniques in machine learning for predicting and crops and managing irrigation,” International the Journal of Agricultural of Science and Technology, vol. 8, no. 2, pp. 45-52, 2019.
3. J. S. Wallace & M. C. Clark, "Data-driven decision support systems and their the importance in precision agriculture," Agricultural Systems, vol. 176, pp. 102-110, 2020.
4. R. Zhang, L. Wang, and Y. Sun, “Analysis of soil the nutrients and crop suggestions of and via machine learning,” Journal of Intelligent Agriculturein an, vol. 5, no. 1, pp. 12-20, 2021.
5. P. B. Patil and S. A. Thorat, "IoT and machine learning in smart farming," International of Journal of Engineering Research & Technology, 2020, vol. 9, no. 6, pp. 789-794.
6. M. Liakos, P. Busato, D. Moshou, S. Pearson, and D. Bochtis, “Review of machine the learning applications in agriculture,” Sensors, vol. 18, no. 8, pp
7. FAO, “Digital technologies in an agriculture and rural of settings,” Food and the Agriculture the Organization of the United Nations, Technical Report, 2019.
8. T. K. Gandhi and M. M. Trivedi, "Detection of the crop diseases through of image processing and machine learning," International Journal of the Computer Applications, vol. 183, no. 12, pp. 1-6, 2018

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com