iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** V **Month of publication:** May 2026

DOI: https://doi.org/10.22214/ijraset.2026.83216

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue V May 2026- Available at www.ijraset.com

FarmConnect: Smart Agricultural Marketplace Using AI and MERN Stack

Sumeet Nikam, Kaustubh Thorat, Milind Patil, Chirag Fegade, Dr.Kalyan D. Bamane, Mrs.Sonal Mohite
Department of Computer Engineering DY Patil College OfEngg, Akurdi Pune, India

Abstract: ***Agriculture is the backbone of the Indian economy, yetfarmersfacesignificantchallengesinmarketingtheirproduce and receiving fair compensation. The presence of intermediaries often reduces farmers' profits and limits direct access to consumers. To address this issue, this paper proposes FarmConnect, a web-based e-commerce platform that enables farmers to sell their products directly to consumers without the involvement of middlemen.***

The platform provides a virtual marketplace where farmers can create profiles, list products, set prices, and manage sales independently. Consumers can easily browse, search, and pur-chase fresh agricultural produce at affordable prices through a user-friendlyinterface.ThesystemisdevelopedusingtheMERN stack,ensuringscalability,dynamicinteraction,andefficientdata management through MongoDB.

Additionally, FarmConnect includes separate login modules for farmers and consumers, secure payment functionality, and a guidelines module that educates farmers about crop cultivation, soil types, and best practices. The proposed solution aims to improve transparency, enhance farmer income, and promote a sustainable and technology-driven agricultural ecosystem.

Index Terms—AgriTech, E-commerce for Farmers, Direct Farmer-to-Consumer, Online Marketplace, Food Supply Chain, Digital Agriculture, Farmer Empowerment, Fresh Produce Dis-tribution

I. INTRODUCTION

The Indian economy is primarily composed of agricultureas its foundation; therefore, agriculture impacts many Indians (farmers) in rural areas and is their sole livelihood [1]. Unfor-tunately, a high number of farmers do not generate enough revenue due to the many layers of intermediaries, such as middlemen, that take a large portion of the profit [2]. This causes farmers to be unable to maximize their income and upsets the balance of the agricultural supply chain [5].

Direct access to markets is another major issue for farmers, whotypicallylackup-to-datemarketpricingontheirproducts. This lack of current price information can lead to poor decision-making and financial losses. As a result, farmers oftenhavetoselltheircropsforlowmarketpricessincethey have no other options available [5]. In recent years, several digitalsolutionsthatofferweather-basedagriculturalappsand InternetofThings(IoT)systemshaveenteredthemarketplace; however, they mainly provide crop monitoring or storage, rather than being a solution to the core issue of providing farmers with access to marketing [1], [2].

Digitalplatforms&eCommercehavebeenviewedaspoten-tialsolutionstocreatedirectconnectionsbetweenproducers& consumers.ForexampleAGRIMARTallowsuserstocommu-nicate with each other through bot technology; thus enabling easier communication between users who may encounter lan-guagedifficulties[3].Mobileappssimilarlyallowfarmers to view price information & connect with retail stores more easily [4]. Unfortunately, many of these digital platforms lack scalability;thusprovidinglessthananidealintegratedcompre-hensive solution for the user experience, ultimately resultingin a less than satisfactory user experience through lack of available features for the current digital platform/eCommerce technologies being utilized today [5].

Modern agricultural systems are becoming increasingly reliant on new technologies such as Machine Learning (ML), CloudComputing(CC),andDataAnalytics(DA)forimprove-ment [6]. ML can be used to analyze data about crops and predict market prices for different crops to provide valuable information to aid farmers when considering what crops to produce or sell. CC enables applications to run at a much higher level of performance and can be accessed by many users simultaneously (e.g., farming in multiple locations) [8]. Furthermore, secure systems play an important role in data preservation/integrity and are critical to establishing confi-dence among farmers/consumers when developing a supply chain for agricultural goods [9].

Despite many advancements, there are still no companiesor organizations that provide all the necessary components of an agricultural retail system into one non-threatening user-friendlysolution[10].

©IJRASET: All Rights are Reserved

Thisleavesmanybusiness-to-consumer (B2C), business-to-business (B2B) companies, and/or farmers withmultiplechoices;thus,creatingagapinthemarketfor combining several functions in one place and making it easy forbothsidesofthetransactiontoutilizetheservicesprovided [12].

To fill this hole, this research proposes a web application (i.e., FarmConnect) that directly connects farmers to the con-sumer via several features, including: (1) Geolocation based search and secure authentication; and (2) Transparent rating systems for customers, farmers, or corporations that provide servicestothefarmer(e.g.,inputsuppliers)orhelpfulto the customer [11]. All of these are important features for successful agri-business marketing [13], [14].

II. LITERATURE SURVEY

In recent years, technology has started playing an im-portant role in agriculture. Many researchers have tried to solve different problems faced by farmers using digital tools and systems. These solutions focus on areas like weather prediction,storagemanagement,communication,security,and onlineselling.However,mostofthesesystemssolveonlyone part of the problem, not the complete agricultural process.

J. Xiao et al. developed a smart weather-based application that provides real-time weather updates and crop-related in-formation to farmers. This helps farmers take better decisions in farming activities like irrigation and harvesting. However, this system is limited only to weather support and does not help farmers in selling their products directly [1].

X. Li et al. introduced an IoT-based storage system that monitors conditions like temperature and humidity to protect crops from spoilage. This improves storage efficiency and reduces losses. But the system mainly focuses on storage and does not provide any solution for connecting farmers with buyers [2].

P.A.M.proposedAGRIMART,anonlineplatformwith a voice-based chatbot that helps farmers communicate easily with buyers. This is especially useful for farmers who face language barriers. However, it does not include features like price prediction or advanced data analysis [3].

P. Shriram et al. created a mobile application that connects farmers with retailers and shows live market prices. This improves market awareness among farmers. Still, the system has limitations in scalability and lacks strong security features [4].

G.Abisheketal.developedawebandmobile-basedsystem where farmers can sell products directly to buyers and also receive ratings. This helps in building trust and transparency. However, the system does not have proper backend support and centralized data management [5].

A.Aravatagimathetal.usedmachinelearningtechniquesto analyzecropdataandpredictmarketprices.Thishelpsfarmers plan better and make informed decisions. But this approach is mainly analytical and is not implemented as a complete real-time selling platform [6].

W.-K. Chen et al. proposed a system for better data presen-tation in web applications. It improves how data is displayed andunderstood.However,thetechnologyusedisoutdatedand not suitable for modern agricultural platforms [7].

J. Kiruthika et al. worked on improving the quality and per-formance of cloud-based e-commerce systems. This ensures betterreliabilityandsystemefficiency.Butthesystemiscom-plexandnotspecificallydesignedforagriculturalapplications [8].

Thilagam and Aruna developed a secure system using encryption and machine learning to protect data from cyber threats. This improves data safety but requires high computa-tional resources, which may not be practical for small farmers [9].

Epoka explored the use of natural language processing to understand and analyze text data. This can improve commu-nication and automation in systems. However, it needs proper integration with agriculture-related data to be useful in this field [10].

Karthick J. et al. proposed a direct selling platform where farmers can sell their products through web and mobile appli-cations. This improves market reach for farmers. However, it lacksadvancedfeatureslikedemandpredictionandintelligent recommendations [11].

Delos Reyes et al. developed a location-based system that connects farmers with nearby buyers. This helps reduce trans-portation cost and time. But it works only in limited regions and depends on accurate location data [12].

Pothula et al. studied the use of blockchain technology to improvetransparencyinagriculturaltransactions.Thisreduces fraud and builds trust. However, blockchain systems are com-plex and require strong technical infrastructure [13].

Hinojosa et al. introduced AgroTIC, a mobile-based plat-form that connects farmers with experts and merchants. It improves communication and knowledge sharing. But it does not provide a full marketplace solution for buying and selling [14].

Bhende et al. created a simple digital marketplace where farmerscanlistandmanagetheirproducts.Thisisuseful for basic operations. However, it lacks scalability and modern features like analytics and delivery integration [15].

Fromtheabovestudies,itisclearthatmostexistingsystems focus on solving specific problems like storage, communi-cation, or analysis. But there is still a need for a complete systemthatcombinesallfeaturesintooneplatform.

Therefore, FarmConnect is proposed as a solution that integrates direct selling, real-time updates, secure transactions, and an easy-to-use interface for both farmers and consumers.

III. METHODOLOGY

FarmConnect is an integrated system intended to be a com-pletely integrated digital solution for agricultural marketingbycombiningwebtechnologieswithartificialintelligence toremovethemiddlemanbyallowingfarmersandbuyers tomeetviaanonlinemarketplacefordirectpurchaseand sale of agricultural products. Additionally, the system will include AI-based crop recommendation, fertilizer prediction, andthedetectionofplantdiseasestohelpfarmersmakebetter informed decisions [11].

The system has been developed using a modular/scalable architecture in which all of the components of the system (front-end,back-end,database,andMLmodels)worktogether toprovideseamlessfunctionality.Thesystemwillalsoprovide real-time weather and pest prediction data to give farmers advance notice of possible pest infestation and weather condi-tions that may impact the productivity of their operations by reducing crop loss [6]. Secure authentication and role-based accesstothesystemwillensureareliableandeasy-to-navigate platform for all users [9].

A. System Architecture

FarmConnect is a multi-layer architecture that consists of five key architecture layers:

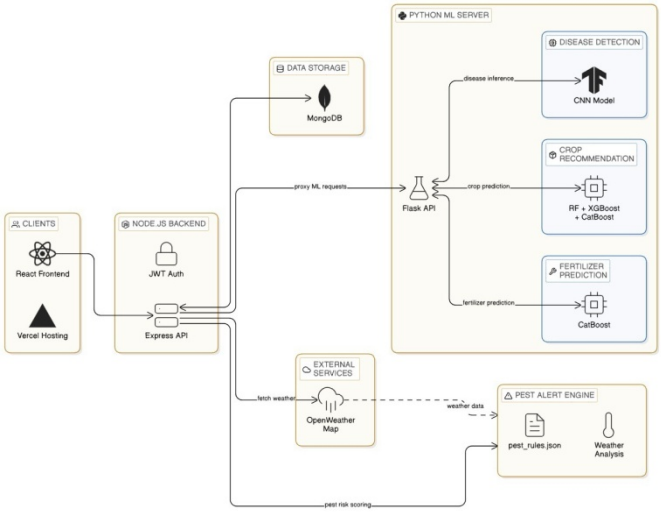


Fig.1.SystemArchitectureofFarmConnect

- Frontend Layer The frontend is built using React, TypeScript, and Tailwind CSS, allowing for ease of use with features to provide users with easy access to all functionalities provided by the system including product browsing, dashboards, and other basic interactions.
- Backend Layer The backend is built on Node.js with Express.js and is where API-based communications, user authentication (JWT), and business logic occur. The backend layer is responsible for linking the frontend and database layers with the ML layer.
- Database Layer The storage of user information, prod-ucts, and orders are stored in a MongoDB database and the database offers a flexible and scalable way of storing data.
- ML Server Layer The ML server layer has been devel-oped using Python Flask. The purpose of this layer is to providerecommendationsforcropsbasedonweatherand soil conditions; to recommend fertiliser types based on weather and soil conditions; and to detect plant diseases based on images of the plants. The ML server contains pre-trained ML models for MobileNetV2 and ensemble ML techniques.
- External APIs Weather data is obtained from the Open-WeatherMap API to provide pest prediction and environ-mental analysis.

Architecture Performs the Following Steps (How it Works):

➢ Users register or login via the frontend layer to be authenticated by the backend.

- Once authenticated, the backend processes the request, with the backend communicating with the database to performdataoperationsasperthebusinesslogicdefined in the backend layer.
- When AI-based features are to be performed (e.g., crop prediction), the backend communicates with the ML server to obtain predictions/results.
- The predictions/results returned from the ML server to thebackendarethenreturnedtotheuserviathefrontend layer.

B. Module-WiseAlgorithms

*1) CropRecommender:*AlgorithmSteps:

- Inputrequiredparameters(N,P,K,temperature,humid-ity, pH, rainfall).
- Preprocessandnormalizetheinputdata.
- Usethenormalizeddataasinputtothetrained Ensemble ML model.
- Themodelpredictswhichcropisbestsuitedforthe given parameters.
- The prediction is returned to the user. Explanation:

Thismoduleutilizesmachinelearningalgorithmssuchas

Random Forest, XGBoost, and CatBoost to analyze soil and environmental conditions. It helps farmers identify the most suitable crop to grow, thereby increasing productivity and reducing risk factors in farming [6].

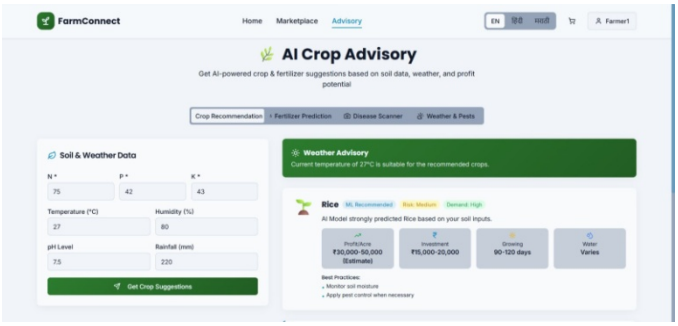


Fig.2.AICropAdvisoryInterface–CropRecommendationModule

*2) FertilizerRecommender:*AlgorithmSteps:

- Input soil type, crop type, nutrient values, temperature, and moisture level.
- Encodecategoricalvaluesprovidedbytheuser.
- Sendtheprocessedinputtothetrained CatBoostmodel.
- Themodelpredictsthemostsuitablefertilizer.
- Displaythepredictedfertilizertotheuser.

Explanation:

This module recommends appropriate fertilizer based on soil and crop conditions. It helps improve soil fertility and reduces excessive use of fertilizers, thereby enhancing farming effi-ciency and sustainability.

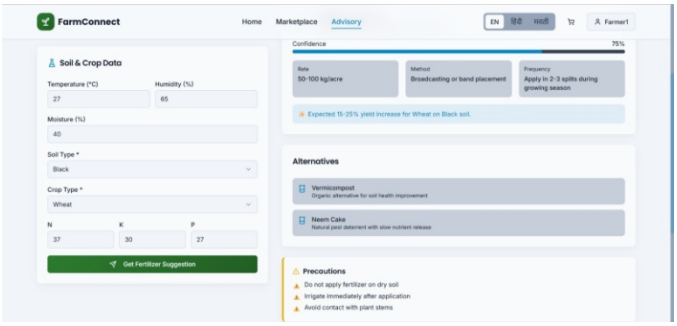


Fig.3.FertilizerPredictionInterface–FertilizerRecommenderModule

3) DetectionandIdentificationofPlantDiseases: Algo-rithm Steps:

- Anuploadedimageisreceivedfromauser.
- Theimageisresizedto224×224pixels.
- Pixelvaluesarenormalized.
- The image is passed to a convolutional neural network (MobileNetV2).
- Extractedfeaturesareusedtopredictthedisease.
- The disease name, confidence level, and suggested mit-igation are returned.

Explanation:

This module uses deep learning techniques, specifically a convolutional neural network with MobileNetV2 architecture, toidentifyplantdiseasesfromleafimages.Itprovidesfastand accurate diagnosis along with treatment suggestions, helping farmers take timely action and reduce crop losses [10].

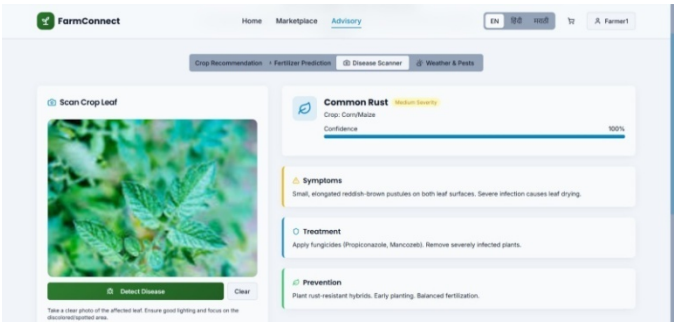


Fig.4.DiseaseScannerInterface–PlantDiseaseDetectionModule

4) Predicting Pest Attacks Based on Weather Data: Algo-rithm Steps:

- Retrieveweatherdataincludingtemperature,humidity, and rainfall.
- Comparetheseparameterswithpredefinedpestcondi-tions.
- Calculatetheriskscorebasedonenvironmentalfactors.
- Classifyriskintolow,medium,high,orcriticallevels.
- Sendpestalertsalongwithpreventivemeasuresto farmers.

Explanation:

This module analyzes weather conditions to predict potential pest attacks. By comparing real-time environmental data with predefined thresholds, it helps farmers take preventive actions and minimize crop damage, improving overall agricultural productivity [6].

5) MarketplaceandOrderManagement: AlgorithmSteps:

- Farmer lists the product with price and available quan-tity.
- Buyersearchesandselectstherequiredproduct.
- Anorderiscreatedandstoredinthedatabase.
- PaymentisprocessedusingUPI(UnifiedPayments Interface).
- Orderstatusisupdatedandtrackedthroughoutthe transaction.

Explanation:

This module enables direct interaction between farmers and buyers through an online marketplace. It ensures transparent transactions, secure payments, and efficient order tracking, thereby eliminating intermediaries and improving farmer in-come [5].

6) AuthenticationandSecurityModule: AlgorithmSteps:

- Userregistersorlogsinusingcredentials.
- Backendvalidatesusercredentials.
- AJWT(JSONWebToken)isgenerateduponsuccessful authentication.
- TokenisusedforsecureAPIaccess.

- Role-Based Access Control manages user permissions.

Explanation:

Thismoduleensuressecureaccesstotheplatformbyim-plementing authentication and authorization mechanisms. It protectsuserdata,maintainssystemintegrity,andensuresthat only authorized users can access specific features [9].

IV. EVALUATION PLAN AND SYSTEM ASSESSMENTFRAMEWORK

The evaluation of the proposed FarmConnect system looks at how effective the system is at improving agricultural mar-keting,increasingfarmerincome,andprovidingAI-basedfea-tures that provide intelligent decision support. The FarmCon-nect system is a direct marketplace, has UPI-based payment methods, an AI-based crop advisory, an AI-based means of detecting disease, and a means of predicting pests based on weather. Therefore, it is very important to assess the technical performance and real-world impact of the FarmConnect sys-tem as a whole. The evaluation framework will evaluate the multiple aspects of the FarmConnect system such as pricing efficiency, system responsiveness, user interaction and data securitytoensurethattheFarmConnectplatformwillprovide adependable,adaptable,anduser-friendlyexperienceforboth farmers and consumers (buyers).

A. EvaluationMetrics

1) PricingEffectiveness

Evaluates how well the platform enables fair pricing by directlyconnectingfarmerswithbuyers.Thisensuresthat farmers can achieve higher profit margins compared to traditional systems involving intermediaries.

2) MatchmakingPerformance

Assesses the platform's ability to connect farmers with potential customers based on location, product availabil-ity,anduserpreferences.Italsoconsidershoweffectively the system facilitates successful transactions between users.

3) SystemPerformance

Analyzessystemresponsetime,scalability,anditsability tohandlemultipleusersandreal-timerequestsefficiently.

4) OperationalBehavior

Examines the workflow of the system, including product listing, order processing, UPI payments, and delivery tracking.

5) SafetyandReliability

Focuses on two key aspects: secure handling of user data through authentication mechanisms such as JWT, andthe overall reliability and stability of the system during operation.

B. DiscussionandExpectedFindings

The FarmConnect platform is anticipated to revolutionize the conventional agricultural supply chain by facilitating di-rect interaction between farmers and consumers. Through the elimination of intermediaries, farmers need not rely upon 'middlemen' to sell their product, allowing them to sell for fairerpricesandretainhigherprofitpercentageswhilehelping consumers reduce prices and acquire fresh product from local producers. With the integration of a digital marketplace and UPI-based payments, transactions will be faster and more transparent by lessening transaction time, thereby increasing trust between users. This direct connection will also improve market access for small and marginal farmers who previously had little access.

In addition to the marketplace, the implementation of AI-based modules will provide significant value to this system. The modules will provide features such as crop recommen-dations, fertilizer estimations, and disease detection, which willallowfarmerstomakedecisionsbasedonreal-time dataandscientificanalyses.Theuseofmachinelearning and deep learning algorithms, including ensemble-based and MobileNetV2 techniques, will also enhance the quality of predictions and the accuracy of forecasts. Furthermore, the module contains a weather-based pest alert feature which will allow the farmer to receive advanced warning of a potential pest threat, to allow them to take preventative action against potentialcroploss.Overall,thecombinationoftheseintelli- gent features is expected to increase agricultural productivity and sustainability.

From a system perspective, the FarmConnect platform is scalable, secure, and user-friendly. Due to the use of modern technologiessuchasReact,Node.js,MongoDB,andFlask,the system is expected to deliver seamless performance with the ability to support multiple users and real-time requests. Ad-ditionally,secureauthenticationusingJWTensuresprotection ofuserdata,whilerole-baseddashboardsenhanceusabilityfor farmers,buyers,andadministrators.

Overall,theFarmConnect system is expected to provide a reliable and efficient platform that improves farmer income while promoting transparency and technological advancement in the agricultural sector.

V. RESULTS AND DISCUSSION

A. *Evaluation Metrics*

1) PricingPerformance:

Quantifies how well the platform helps farmers improve their earningsbyeliminatingintermediariesandallowingthem toselldirectlytobuyers.Usersofthesystemshouldbe able to see the prices at which they sell and gain profitmargins substantially greater than those typically associated with standard supply chain transactions.

2) ScalabilityQuality:

Quantifiesthecapacityoftheapplicationtoaccommodate an increasing number of users, products, and transactions. Modern technologies such as Node.js and MongoDB will allow scalability without compromising performance.

3) MatchmakingPerformance:

Quantifies the platform's ability to connect farmers to buyers basedonlocation,productavailability,andpreference.Having a strong matchmaking system will contribute to a greater successratefortransactionsandahigherdegreeofsatisfaction for users.

4) OperationalBehaviour:

Quantifiestheefficiencyofeachproductlisting,orderprocess-ing, handling payments through UPI, and tracking deliveries. A well-designed workflow will enhance the usability of the platform and will eliminate delays that occur due to opera-tional inefficiencies.

5) MatchmakingandDatabaseEfficiency:

Quantifiestheefficiencywithwhichtheapplication'sdatabase responds to queries related to product searches, user data, and order management. Optimizing the database operations will increase response time and reliability of the system.

6) PrivacyandSecurity:

Focuses on ensuring the proper handling of user data by implementing appropriate authentication methods (e.g., JWT) and providing protection from unauthorized user access. Trust in the system and willingness to use the platform will be directly impacted by the protection of user data and the integrity of the system.

B. *ModelPerformanceEvaluation*

*1) CNN Disease Detection Model:*CNN-Based Plant Dis-ease Detection Model was evaluated by way of important metricsincludingTrainingandValidationAccuracy,Precision, Recall and F1-Score which was based upon the model's reliable prediction for Real-time Plant Disease Detection in terms of strong performance as related to the Balance of Accuracies and Very Little Overfit.

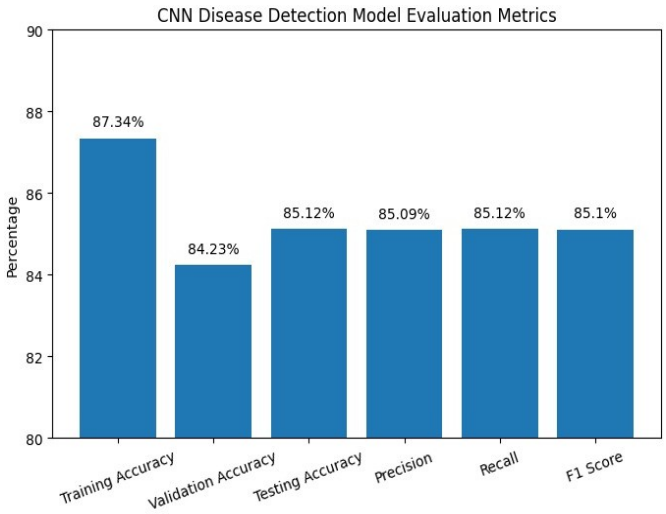


Fig.5.PerformanceEvaluationofCNN-BasedDiseaseDetectionModel

As shown in Fig. 5,the model performs consistently across all evaluation metrics, indicating reliable and accurate disease classification.

1) *Crop Recommendation Model:* To evaluate the perfor-manceofourcroprecommendationsystem,wecompare ittoanexistingsystemusingvariousmeasuressuchas cross-validation accuracy, training accuracy, testing accuracy, precision, recall and F1 score. Our new system demonstrates improvements in performance as well as enhanced predictive capabilities.

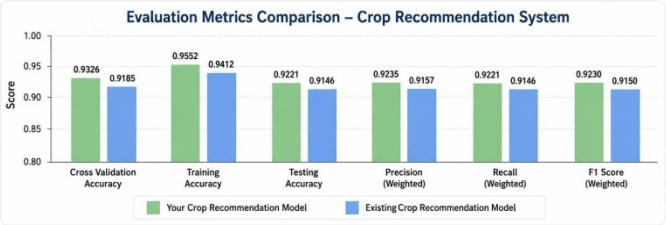


Fig.6.ComparisonofCropRecommendationModels

As illustrated in Fig. 6, the proposed model achieves better performancethanexistingsystemsacrossmostmetrics,show-ing improved reliability and efficiency.

2) *Fertilizer Recommendation Model:* The fertilizer rec-ommendation model was evaluated using many of the same classificationmetrics.Themodelalsooutperformedtraditional methodswithincreasedaccuracyandimprovedpredictive consistency.

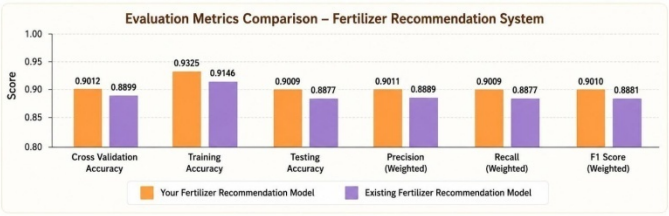


Fig.7.ComparisonofFertilizerRecommendationModels

Fig.7demonstratesthattheproposedmodelimprovesonall evaluation metrics and would be a viable option for practical use in agriculture.

C. ExpectedOutcomesandLimitations

TheFarmConnectplatformisanticipatedtobeatransforma-tive solution for bridging the gap in agricultural marketing by enabling direct farmer-consumer engagement while eliminat-ing reliance on middlemen. Farmers are expected to benefit from improved pricing for their products, while consumers gain access to fresh and affordable produce. Decision-making is anticipated to improve through the integration of artificial intelligence (AI) features such as crop recommendations, fertilizer predictions, and disease detection, thereby reducing croplossescausedbylackofinformation.Additionally,timely weather and pest alerts will allow farmers to take preventive measures, ultimately increasing agricultural productivity.

However, the system also presents certain challenges. The accuracyofAImodelsdependsonthequalityandquantity of training data, which may vary across different regions. Ac-cessibility may be limited in rural areas due to dependence on internetconnectivity.Furthermore,scalabilityissuesmayarise when a large number of users access the platform simultane-ously. Despite these challenges, the system provides a strong foundationforatechnology-drivenagriculturalecosystemand canbefurtherenhancedthroughcontinuousimprovementsand real-world deployment.

VI. CONCLUSION

The FarmConnect platform provides an efficient and pio-neering approach to addressing the problems of conventional agricultural supply chains through the provision of direct en-gagement between key stakeholders, specifically farmers and consumers. The removal of intermediaries allows farmers to earn reasonable profits from their products, while also provid-ingconsumerswithgreateraccesstofreshandaffordablefood. By combining a digital marketplace with UPI-based payment methods,thesystemenhancestransactiontransparency,speed, and user trust. Furthermore, the platform supports small and marginal farmers by offering improved market access through digital channels, reducing reliance on traditional distribution systems.

In addition, the integration of advanced technologies suchasmachinelearning(ML)anddeeplearning(DL)further strengthens the capabilities of FarmConnect.

Features includ-ing crop recommendation, fertilizer prediction, plant disease detection, and weather-based pest alerts assist farmers in making informed decisions, thereby improving productivity and reducing crop losses. Modern web technologies ensure scalability,security,andefficientsystemperformance.Asa result, FarmConnect contributes to the development of a transparent,intelligent,andsustainableagriculturalecosystem, withstrongpotentialforreal-worldimplementationandfuture enhancements.

VII. FUTURE SCOPE

By incorporating future regional advancements and im-plementing other complex emerging technologies observable today as well as using tangible agricultural products/services onto the FarmConnect Platform it creates an opportunity to add more functionalities. Expanding the Platform into becom-ing a fully functional mobile application will also make it much more accessible to farmers located in rural geographic areas.Alongwiththesetwopoints,theadditionalinclusion of regional language options, along with voice recognition technologysupportwithintheApplicationwillaidfarmersthat cannotreadsuchinformationduetolackofeducation/training or due to their limited technological literacy levels.

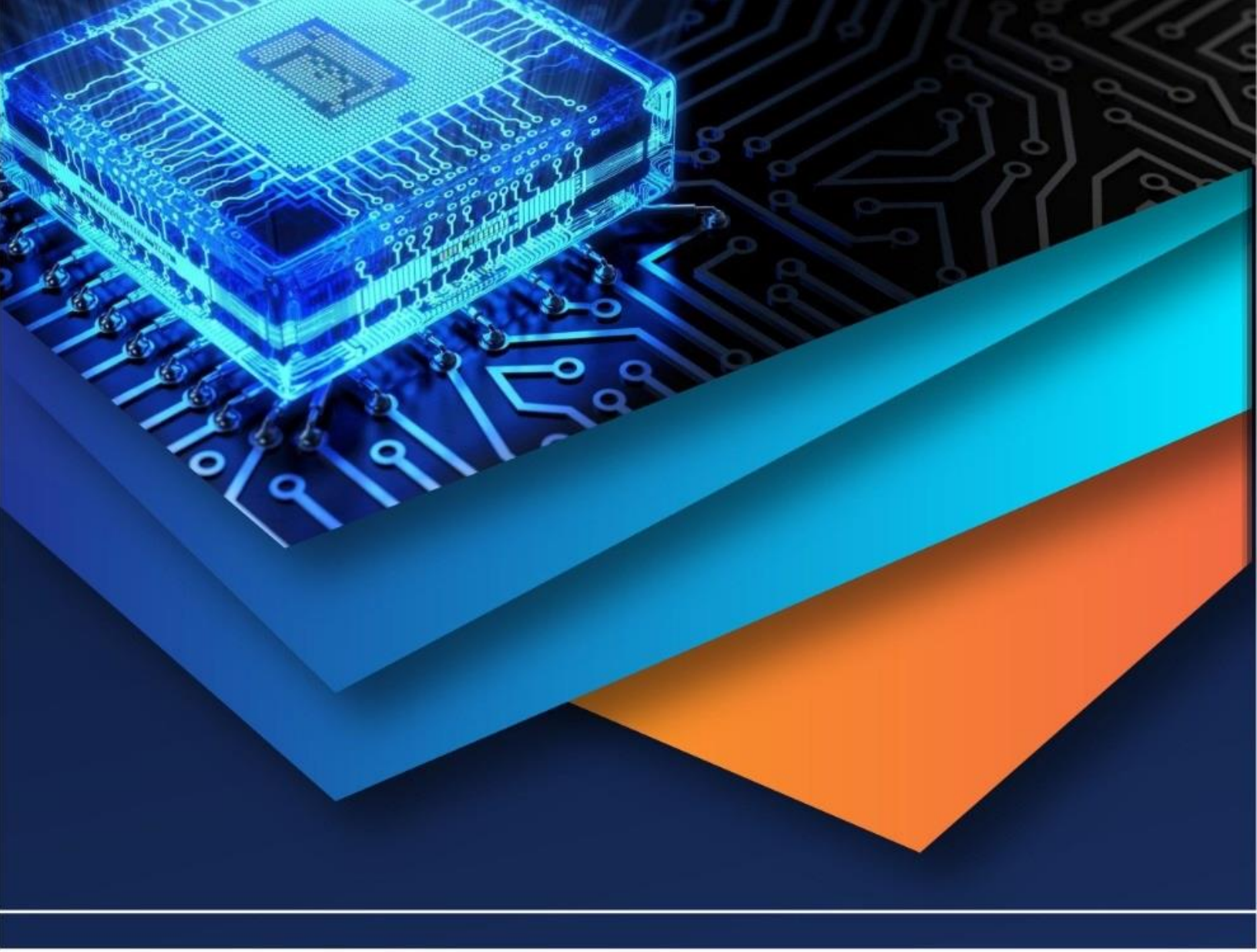
Advancing AI functionalities through the accumulation of greater quantities of historical/social data into mass amountsof datasets using advanced deep learning models will result in increasedaccuracyregardingcroprecommendations,fertilizer predictions,anddetectionofplantdiseases.Theincorpora-tion of IoT devices and/or smart sensor technology into this platform will allow for the acquisition of real-time soil and environmental data collection/gathering in order to perform more exact agricultural analyses and auto-monitor systems for ongoing use.

At a future date, the new version/iteration of FarmConnect may have the ability to utilize Blockchain Technology to providesecuretransactionswithcompletetraceabletransaction histories that can be checked on by any Party (Seller, Buyeror Third-Party), as well as have direct government scheme integrations to provide farmers with agricultural subsidies, assistance with securing a crop insurance policy, and/or pro-viding direct financial assistance when needed. The additionof several logistical/supply chain optimization features could also assist in improving delivery management, as well as aiding in the waste reduction methods associated with food production/distribution.Alloftheseenhancementswillgreatly enhance the value ratio of FarmConnect; ultimately, trans-formingtheentireAgriculturalEcosystemfromallaspects of sustainability, digitalized agricultural development, etc...to smart farming.

REFERENCES

[1] J.Xiaoetal.,"DesignandImplementationofIntelligentAgricul-tural Meteorological App," in *Proc. IEEE 9th Int. Conf. on Agro-Geoinformatics*, 2021.
[2] X. Li et al., "Design of Intelligent Storage Management System forAgricultural Products Based on IoT," in *Proc. IEEE 2nd Int. Conf. onElectronic Information Technology and Smart Agriculture*, 2022.
[3] P. A. M., "AGRIMART: An E-Platform for Agro Products with Voice-Based Chatbot," in *Proc. IEEE Int. Conf.*, 2020.
[4] P. Shriram et al., "Android App to Connect Farmers to Retailers andFood Processing Industry," in *Proc. IEEE 3rd Int. Conf. on InventiveComputation Technologies (ICICT)*, 2018.
[5] G.Abisheketal.,"AgricultureMarketingUsingWebandMobile-Based Technologies," in *Proc. IEEE Technological Innovations in ICTfor Agriculture and Rural Development (TIAR)*, 2016.
[6] A. Aravatagimath et al., "Agriculture Product Marketing Data AnalysisUsing Machine Learning," in *Proc. IEEE Int. Conf. on Forensics,Analytics, Big Data, and Security (FABS)*, 2021.
[7] W.-K. Chen et al., "A Table Presentation System for Database and WebApplications," in *Proc. IEEE Int. Conf. on e-Technology, e-Commerceand e-Service*, 2004.
[8] J.Kiruthikaetal.,"QualityMeasurementforCloud-BasedE-CommerceApplications," in *Proc. IEEE Int. Symposium on Distributed Computingand Applications to Business, Engineering & Science*, 2012.
[9] T. Thilagam and R. Aruna, "LM-GA: A Novel IDS with AES andMachine Learning Architecture for Enhanced Cloud Storage Security,"*Journal of Machine and Computing*, 2023.
[10] B. E. Epoka, "Literature Review of Qualitative Data with NaturalLanguage Processing," *Journal of Robotics Spectrum*, 2023.
[11] KarthickJ.etal.,"Direct-to-ConsumerE-CommercePlatformforFarm-ers and Buyers," in *IEEE-affiliated Student Project*, 2024.
[12] Delos Reyes et al., "Revolutionizing Agricultural Marketing UsingLocation-Based Platforms," in *Regional ICT Research Conf.*, 2024.
[13] Pothula et al., "Assessing Blockchain Applications in AgriTech," *IEEEComputer Society*, 2022.
[14] Hinojosa et al., "AgroTIC: Bridging Farmers and Merchants UsingMobile Technology," *arXiv/IEEE Referenced*, 2023.
[15] Bhende et al., "Digital Market: E-Commerce Application for Farmers,"in *Proc. IEEE Conf.*, 2018.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)