INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

Crop Cultivation Information System on Mobile Phones

GAYATHRI P B, HEMALATHA S, NIRANJINI S, DR.S. SOUNDARARAJAN

U.G Scholar, Department of CSE, Velammal Institute of Technology, Chennai, Tamil Nadu, India

U.G Scholar, Department of CSE, Velammal Institute of Technology, Chennai, Tamil Nadu, India

U.G Scholar, Department of CSE, Velammal Institute of Technology, Chennai, Tamil Nadu, India

Vice Principal, Velammal Institute of Technology, Chennai, Tamil Nadu, India

ABSTRACT: Most agricultural crops have been badly affected by the effect of global climate change in India. In terms of their output over the past 20 years. It will allow policy makers and farmers to take effective marketing and storage steps to predict crop yields earlier in their harvest. This will allow farmers to capture the yield of their crops before cultivation in the field of agriculture and thus help them make the necessary decisions. Implementation of such a method with a web -based graphic software that is simple to use and the machine learning algorithm can then be distributed. The results obtained are granted access to the farmer. And yet there are various methods or protocols for such very data analytics in crop yield prediction, and we are able to predict agricultural productivity with guidance of all those algorithms. It utilizes a Random Forest Algorithm. By researching such problems and issues such as weather, temperature, humidity, rainfall, humidity, there are no adequate solutions and inventions to resolve the situation we face. In countries like India, even in the agricultural sector, there are many types of increasing economic growth. In addition, the processing is useful for forecasting the production of crop yields.

I. INTRODUCTION

Agriculture is the backbone of India. As we known, food stands first in the basic need of survival; agriculture sector needs to be given the highest preference in development. Indian agriculture sector accounts for 18% of Indian agriculture gross domestic product (GDP) and provides employment to 50% of the country's workforce. The main reason for considered Agriculture sector is because it plays an important role in developing the country's economy. The proposed System uses the Crop Selection as the area of research, since it the first and most important step in the process of agricultural development and the success of this step guarantees the result of production. Agriculture development provides assistance to the crop producers with the help of various agricultural resources. As a result, it provides high productivity with low consumption of resources.

Crop production may also be an advanced development that is affected by the input parameters of soil and condition. Process parameters of agriculture vary from area to area and producer to producer. It may also be a discouraging challenge to collect such information in an even larger room. The Indian Meteoric Department, however, tabulates the environmental condition information collected in the Republic of India at each 1sq.m space in various components of the district. The huge sets of such information are often used to predict their effect on that district or place's main crops. Within the agriculture or related sciences field, there are entirely different foretelling methodologies developed and evaluated by researchers around the globe. Some studies of that type are: In alternative countries, agricultural researchers have shown that attempts to increase crop yield by pro-pesticide state maximization have been carried out. Driven strategies for dangerously high chemical use have been introduced. The association between chemical use and crop yield has been stated in these studies. Agriculture is a partner trade sector that has gained significantly in recent years from the growth of detector technology, information science, and machine learning (ML) techniques.

II. LITERATURE SURVEY

1. In Predicting yield of the crop using machine learning algorithm. International Journal of Engineering Science Research Technology. This paper focuses on predicting the yield of the crop based on the existing data by using Random Forest algorithm. Real data of Tamil Nadu were used for building the models and the models were tested with samples. Random Forest Algorithm can be used for accurate crop yield prediction.

2. In Random forests for global and regional crop yield prediction. PLoS ONE Journal. Our generated outputs show that RF is an effective and adaptable machine-learning method for crop yield predictions at regional and global scales for its high accuracy and precision, ease of use, and utility in data analysis. Random Forest is the most efficient strategy and it outperforms multiple linear regressions (MLR).

3. In Crop production Ensemble Machine Learning model for prediction. International Journal of Computer Science and Software Engineering (IJCSSE). In this paper, AdaNaive and AdaSVM are the proposed ensemble model used to create the crop production over a time period. Implementation done using AdaSVM and AdaNaive. AdaBoost increases efficiency of SVM and Naive Bayes algorithm.

4. In Machine learning approach for forecasting crop yield based on parameters of climate.
   The paper provided in International Conference on Computer Communication and Informatics (ICCCI). In the current research a software tool named Crop Advisor has been developed as a user friendly web page for predicting the influence of climatic parameters on the crop yields.C4.5 algorithm is used to produce the most influencing climatic parameter on the crop yields of selected crops in selected districts of Madhya Pradesh. The paper is implemented using Decision Tree.

5. In Prediction on Crop Cultivation. International Journal of Advanced Research in
   Computer Science and Electronics Engineering (IJARCSEE) Volume 5, Issue 10, October 2016. Presently, soil analysis and interpretation of soil test results is paper based. This in one way or another has contributed to poor interpretation of soil test results which has resulted into poor recommendation of crops, soil amendments and fertilizers to farmers thus leading to poor crop yields, micro-nutrient deficiencies in soil and excessive or less application of fertilizers. Formulae to Match Crops with Soil, Fertilizer Recommendation.

III. PROPOSED SYSTEM

The proposed system aims at predicting or forecasting the crop yield by learning the past data of the farming land. To predict future events Machine Learning Algorithms: Supervised learning: Supervised machine learning algorithms can apply what has been learned in the past to new data using labeled examples. After Sufficient training the system can provide targets for any new input. In order to change the model accordingly the learning algorithm can also differentiate its results with the correct, intended output and find errors. Unsupervised learning: In comparison, unsupervised machine learning algorithms are used when the information used to train is neither labeled nor classified. Unsupervised learning does analysis of how systems can infer a function to describe a hidden structure from unlabelled data.

In order to describe hidden structures from unlabelled data the system doesn't figure out the right output, but it examines the data and can draw inferences from datasets. Random Forest Classifier: Random forest is the most popular and powerful supervised machine learning algorithm capable of performing both classification and regression tasks, that operate by constructing a multitude of decision trees at the time of training and generating outputs of the class that is the mode of the classes (classification) or mean prediction (regression) of the individual trees. The more trees in a forest the more robust the prediction.

System design: The system prepared predict major crops yield in a particular district in Tamil Nadu. The client on their first login has to register themselves on the application on android phone .Once the user logins into the system he gets all the access for predicting crop yield and using the input such as location, temperature, pH value, rainfall and humidity depends on their forming land environment. After submitting the inputs, it's redirect into Firebase. The firebase is an intermediate between user input and trained data set. The input goes to the trained data, where it processes random forest algorithm to predict crop and price. After the prediction, the predicted value passes to the firebase. That firebase gives the predict value to the user on android application.
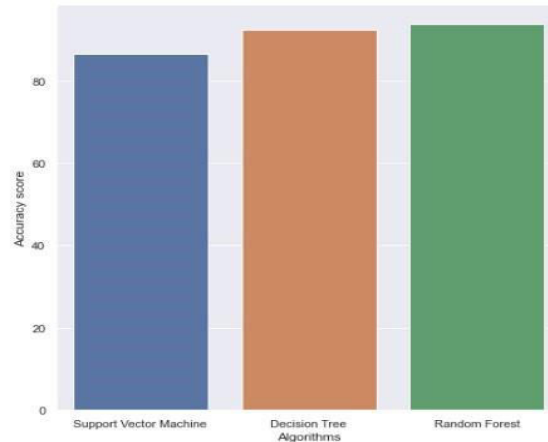
The above graph shows that, the Random forest algorithm gives more accuracy when compared to the other classification techniques like Support vector machine, Decision tree algorithm.

IV. MODULE DESCRIPTION

1. **Dataset Collection:**
   For crop prediction, dataset are collected from kaggle.com. Data is preprocessed after collection of various records. The dataset contains a more number of records, where some records are with some missing values. Those missing records have been removed from the dataset and filled the data using python package techniques (Pandas, NumPy).

2. **Implementation:**
   The classification Algorithms always produces the best results. We are using Random Forest Algorithm to predict the crop and price using ML. On an analysis conducted within various algorithms, the Random Forest was found to provide highest efficiency and precision compared to Decision tree. Because RF contain number of decision tree algorithm, that take the average to improve the predictive accuracy of dataset. Hence the RF algorithm is used in the proposed system to find the suitable crop and crop price.

V. ARCHITECTURE DIAGRAM
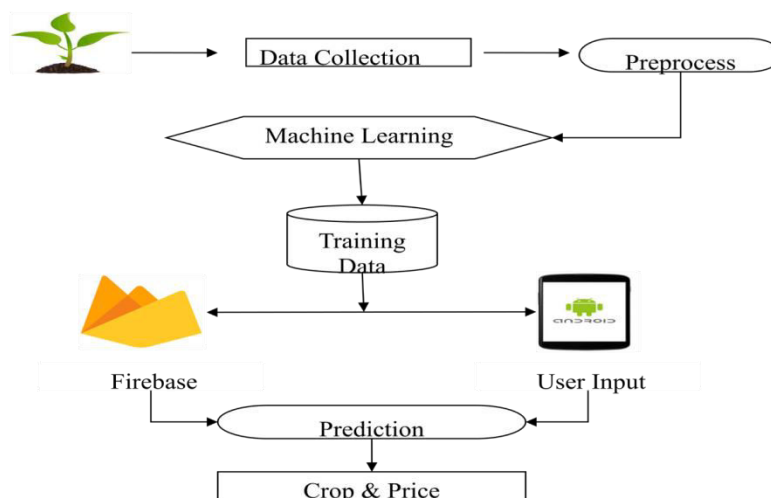
3. Prediction:

Preprocessed data are trained and input given by the user goes to the trained dataset using firebase. After prediction the predict value given as an output to android through firebase.

VI. CONCLUSION AND FUTURE SCOPE

The present study showed the practical use of data mining techniques in predicting crop yield based on climate input parameters. The built website is user-friendly, and that reliability of prediction in all of the other grains and regions chosen in the analysis should be above 75 percent, indicating greater predictive performance. The net page is developed to predict crop yield by providing data from that area. Any user uses their crop option.

REFERENCES

[1].S.Veenadhari, Dr Bharat Misra, Dr CD Singh.2019."Machine learning approach for forecasting crop yield based on climatic parameters." International Conference on Computer Communication and Informatics (ICCCI), 2014.

[2] .P.Priya, U.MuthaiahM.Balamurugan.Predicting yield of the crop using machine learning algorithm. International Journal of Engineering Science Research Technology (IJESRT), 2018.

[3] .D Ramesh, B Vishnu Vardhan. Analysis of Crop Yield Prediction Using Data Mining Techniques. IJRET: International Journal of Research in Engineering and Technology (IJERT), 2015.

[4] .F.Baheri, F. Davardoost and V. Ahmadzadeh, "Data mining with learning decision tree and Bayesian network for data replication in Data Grid", Proceedings of the Third International Conference on Contemporary Issues in Computer and Information Sciences, pp. 51- 51, 2012..

[5]. Abdullah, A., Brobst, S, Pervaiz.I., UmerM.,and A.Nisar.2004. Learning dynamics of pesticide abuse through data mining. Proceedings of Australian Workshop on Data mining and Web Intelligence, New Zealand, January,2004.

[6].C.T.Dhanya and D. Nagesh Kumar, "Data mining for evolution of association rules for droughts and floods in India using climate inputs", J. of Geo. Phy. Res.114: 1-15, 2009.

[7] .VS Boddu, BNK Reddy, MK Kumar, "Low-power and area efficient N-bit parallel processors on a chip," 2016 IEEE annual India conference (INDICON), pp. 1-4, 2016.

[8]. M. Kaur, H. Gulati, and H. Kundra, "Data Mining in Agriculture on Crop Price Prediction: Techniques and Applications," International Journal of Computer Applications, vol. 99, no. 12, pp.1-3, August.2014.

[9]. F. Baheri, F. Davardoost and V. Ahmadzadeh, "Data mining with learning decision tree and Bayesian network for data replication in Data Grid", Proceedings of the Third International Conference on Contemporary Issues in Computer and Information Sciences, pp. 51- 51, 2012.

BIOGRAPHY

Gayathri P B is a B.E.final year student in the department of Computer Science and Engineering from Velammal Institute of Technology, Panchetti. Her current research focuses on crop yield prediction using machine learning techniques.

Hemalatha S is a B.E. final year student in the department of Computer Science and Engineering from Velammal Institute of Technology, Panchetti. Her current research focuses on crop yield prediction using machine learning techniques.

Niranjini S is a B.E. final year student in the department of Computer Science and Engineering from Velammal Institute of Technology, Panchetti. Her current research focuses on crop yield prediction using machine learning techniques.

Dr.S. Soundararajan, Vice Principal of Velammal Institute of Technology, Panchetti.

INNO SPACE
SJIF Scientific Journal Impact Factor

Impact Factor: 8.165

doi® crossref

ISSN
INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

निस्केयर
NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING