



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Special Issue 2, April 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com



Crop Yield Prediction Using Random Forest Algorithm

Dr.A.Rajeshwari¹, Dheena Mahilan², Mithun Anand², Vidhya Sagar²

Assistant Professor, Department of Computer Engineering, Velammal Engineering College, Velammal Engineering College, Chennai, Tamil Nadu, India

U.G Scholar, Department of Computer Science Engineering, Velammal Engineering College, Velammal Engineering College, Chennai, Tamil Nadu, India

ABSTRACT: India is the land of agriculture, and it is the major source of economy. 70% of Indian population directly relies on agriculture. The normal issue existing among the youthful Indian ranchers is to pick the right yield in view of the dirt prerequisites. Because of this, they face a serious misfortune in efficiency. Our work proposes to assist ranchers with deciding the dirt quality by doing investigation on its different boundaries and to recommend crops in light of the outcomes got utilizing information mining approach. The system uses the Classification algorithm of Support Vector Machine to improve the efficiency of Crop Recommendation System. The framework maps the dirt and harvest information to anticipate the rundown of appropriate yields for the dirt and it additionally gives the data about supplements which are insufficient in soil for the particular crop. Thus it leaves upon the client to settle on the harvest to be planted. Consequently, the framework assists with giving information to the trifler ranchers.

KEYWORDS: Support vector machine, Crop prediction, Machine learning, Agriculture.

I. INTRODUCTION

Agriculture is the backbone of India. As we known, food stands first needing endurance; farming area should be given the most elevated inclination being developed. Indian agribusiness area represents 18% of Indian farming GDP (Gross domestic product) and gives work to half of the nation's labor force. The fundamental justification behind considered Horticulture area is on the grounds that it assumes a vital part in fostering the nation's economy. The proposed System uses the Crop Selection as the area of research since it is the first and most important step in the process of agricultural development and the success of this step guarantees the result of production. Agribusiness advancement furnishes help to the harvest makers with the assistance of different rural assets. Therefore, it gives high efficiency low utilization of assets.

Yield expectation is a vital issue in horticulture. Any rancher is keen on realizing how much yield he is going to anticipate. Examine the different related ascribes like area, pH esteem from which alkalinity of the still up in the air. Along with it, percentage of nutrients like Nitrogen (N), Phosphorous (P), and Potassium (K), Location type of soil, nutrient value of the soil in that region can be determined. This large number of qualities of information will be broke down, train the information with different reasonable AI calculations for making a model.

Type of soil plays a major role in the crop yield. Suggesting the use of fertilizers may help the farmers to make the best decision for their cropping situation. By fully analyze the previous data we can suggest the farmer for a better crop for the better yield. Crop yield prediction is the important research which helps to secure food. For the better understanding of the crop yield, we need to study huge data with the help of machine learning algorithm and suggest the farmer for a better crop.



II. RELATEDWORK

[1] A survey on DataMining Techniques for crop Yield Prediction

Authors: Ramesh , Vijay

This paper presents the different harvest yield forecast strategies utilizing information mining methods. Rural framework is extremely complicated since it manages enormous information circumstance which comes from various elements. Crop yield prediction has been a subject of interest for makers, experts, and farming related associations. In this paper the authors focus on the applications of data mining techniques in agricultural field. Different Data Mining techniques such as K- Means, KNN, ANN and SVM for exceptionally ongoing utilizations of information mining procedures in agribusiness field. Information mining innovation has gotten an extraordinary advancement with the quick improvement of software engineering, man-made reasoning. Information Mining is an arising research field in horticulture crop yield examination. Information Mining is the most common way of recognizing the concealed examples from enormous measure of information. Yield prediction is a very important agricultural problem that remains to be solved based on the available data.

The problem of yield prediction can be solved by employing data mining techniques

[2] Applying Data Mining Techniques to Predict Annual Yield of Major Crops and Recommend Planting Different Crops in Different Districts in India

Authors: Rajshekhar Borate, 2Rahul Ombale, 3Sagar Ahire, 4Manoj Dhawade, 5Mrs. Prof. R.P. Karande

In India there are different agriculture crops production and those crops depends on the various kind of factors such as biology, economy and also the geographical factors. Furthermore, this few elements diversely affect crops, which can be measured utilizing suitable factual procedures. Applying such systems and strategies on verifiable yield of various harvests, it is feasible to acquire data or information which can be useful to ranchers and government associations for settling on better choices and for improve arrangements which help to expanded creation. In this paper, the authors focus on application of data mining techniques which is use to extract knowledge from the agricultural data to estimate better crop yield for major crops in major districts of India.

III. METHODOLOGY

Prediction of the crop using machine learning algorithm and suggest how much quantity of fertilizer should be used to get the proper yield for the crop.

This is the sample dataset used in this project. data used to predict the crop for every locations based on the nutrition contents such as nitrogen, phosphorous and potassium in that region. By this data we can create a machine learning model and train the model and we can predict the crops. we can predict the amount of fertilizer should be used to get the proper yield and the output is the amount of the respective fertilizer should be used

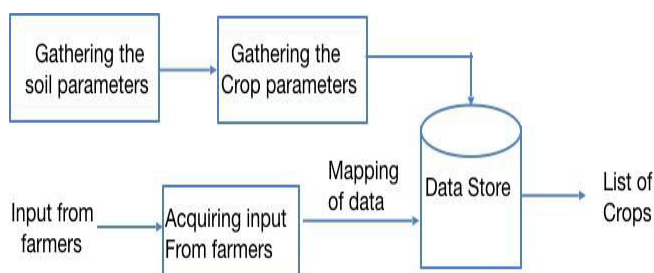


Fig.1 Architecture diagram



IV.EXPERIMENTALRESULTS

The system obtains the soil and crop parameters and maps those to list the suitable crops. It passes the various inputs to the controller which uses the Support Vector Machine Algorithm for classification. The proposed framework gives simple availability to the clients. They are likewise simple to utilize and figure out by the trifier ranchers.It improves the visualization and understandability.

SAMPLEOUTPUTFORCROPRECOMMENDER

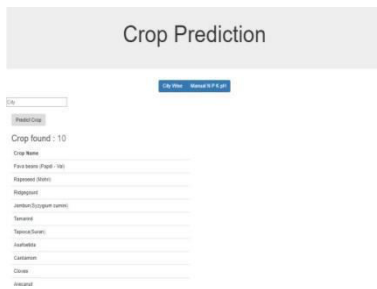


Fig. 2

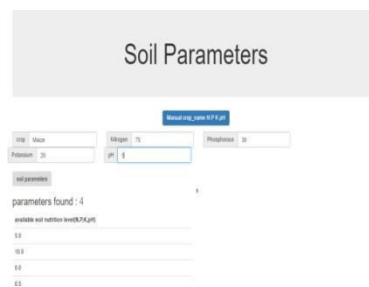


Fig. 3

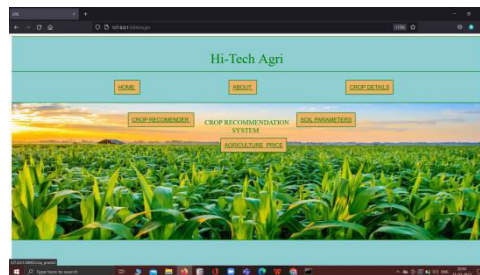


Fig. 4

SAMPLEOUTPUT FORSOILPARAMETER

CropName	Nutrientsavailable				Requiredquantityoffertilizers			
	N	P	K	pH	N	P	K	pH
Rice	77	35	38	5	3.0	5.0	2.0	0.5
sMaize	65	28	15	5.5	15.0	12.0	5.0	0.0
Blackgram	30	49	20	5	10.0	11.0	0.0	0.0
Carrot	36	35	50	5	4.0	10.0	10.0	0.5
Radish	20	80	35	5.5	5.0	20.0	15.0	0.5



V.CONCLUSION

The system uses Supervised Machine Learning Algorithm to recommend suitable crops with higher accuracy and efficiency. The system lists the suitable crops based on the soil and leaves it upon the farmers to decide on the crop to besown.

REFERENCES

- [1] Food and Agriculture Organization of the United Nations (FAO). World Food Situation: FAO Cereal Supply and Demand Brief. Available online: <http://www.fao.org/worldfoodsituation/csdb/en/>
- [2] Anna Chlingaryan, Salah Sukkarieh, Brett Whelan, "Machine learning approaches for crop yield prediction and nitrogen status estimation in precision agriculture: A review", Computers and Electronics in Agriculture, Volume 151.
- [3] S. Veenadhari, Bharat Misra, C. D. Singh, "Machine learning approach for forecasting crop yield based on climatic parameters", International Conference on Computer Communication and Informatics, 2014, Coimbatore, India.
- [4] M. A. Jayaram and Netra Marad, "Fuzzy Inference Systems for Crop Yield Prediction", Journal of Intelligent Systems, 2012, 21(4) page 363-372
- [5] Gonzalez-Sanchez, Frausto-Solis, J., Ojeda-Bustamante, W., "Attribute selection impact on linear and nonlinear regression models for crop yield prediction", Sci. World Journal, 2014. An Approach for Prediction of Crop



SJIF: 8.423



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INTERNATIONAL CENTRE



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 **9940 572 462**  **6381 907 438**  **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details