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CROP YIELD PREDICTION USING MACHINE LEARNING

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Project: Crop Yield Prediction Using Machine Learning

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Abstract

The impact of climate change in India, most of the agricultural crops are being badly affected in terms of their performance over a period of the last two decades. Predicting the crop yield in advance of its harvest would help the policy makers and farmers for taking appropriate measures for marketing and storage. This project will help the farmers to know the yield of their crop before cultivating onto the agricultural field and thus help them to make the appropriate decisions. It attempts to solve the issue by building a prototype of an interactive prediction system. Implementation of such a system with an easy-to-use web based graphic user interface and the machine learning algorithm will be carried out. The results of the prediction will be made available to the farmer. Thus, for such kind of data analytics in crop prediction, there are different techniques or algorithms, and with the help of those algorithms we can predict crop yield. Random forest algorithm is used. By analysing all these issues and problems like weather, temperature, humidity, rainfall, moisture, there is no proper solution and technologies to overcome the situation faced by us. In India, there are many ways to increase the economic growth in the field of agriculture. Data mining is also useful for predicting crop yield production. Generally, data mining is the process of analysing data from various viewpoint and summarizing it into important information. 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 during training time and generating output of the class that is the mode of the classes (classification) or mean prediction (regression) of the individual trees.

CROP YIELD PREDICTION USING MACHINE LEARNING

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Abstract— The impact of climate change in India, most of the agricultural crops are being badly affected in terms of their performance over a period of the last two decades. Predicting the crop yield in advance of its harvest would help the policy makers and farmers for taking appropriate measures for marketing and storage. This project will help the farmers to know the yield of their crop before cultivating onto the agricultural field and thus help them to make the appropriate decisions. It attempts to solve the issue by building a prototype of an interactive prediction system. Implementation of such a system with an easy-to-use web based graphic user interface and the machine learning algorithm will be carried out. The results of the prediction will be made available to the farmer. Thus, for such kind of data analytics in crop prediction, there are different techniques or algorithms, and

future crop productivity and an analysis is to be mad the farmers to maximize the crop production of crops is an important agricultural problem. In the past farme their yield from previous year yield experiences. Thu data analytics in crop prediction, there are differe algorithms, and with the help of those algorithms we yield. Random forest algorithm is used. Using all thes with the help of inter-relation between them, there a of applications and the role of Big data analyti agriculture. Since the creation of new innovative techniques the agriculture field is slowly degradin abundant invention people are concentrated on cul products that are hybrid products where there leads life. Nowadays, modern people don't have awar

situation faced by us. In India, there are many ways to increase the economic growth in the field of agriculture. Data mining is also useful for predicting crop yield production. Generally, data mining is the process of analysing data from various viewpoint and summarizing it into important information. 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 during training time and generating output of the class that is the mode of the classes (classification) or mean prediction (regression) of the individual trees.

Keywords— Agriculture, Machine Learning, crop-prediction, Supervised Algorithms, Crop yield, Data Mining.

I. INTRODUCTION

Agriculture is the backbone of the Indian economy. In India, agricultural yield primarily depends on weather conditions. Rice cultivation mainly depends on rainfall. Timely advice to predict the

problems like weather, temperature and several fa
proper solution and technologies to overcome the s
us. In India, there are several ways to increase the ec
the field of agriculture. There are multiple ways
improve the crop yield and the quality of the crops. D
useful for predicting crop yield production. The mai

a. To use machine learning technique
yield.
b. To provide easy to use User Interface
c. To increase the accuracy of crop yield
d. To analyse different climatic paramet
rainfall, temperature)

II. LITERATURE REVIEW

In [1] Predicting yield of the crop using m achine l e
International Journal of Engineering Science Resea
This paper focuses on predicting the yield of the c
existing data by using Random Forest algorithm. Re
Nadu were used for building the models and the mo

Citations (13) | References (15)

... Hence, it was decided to execute many algorithms such as random forest (RF), stacked generalization, gradient boosted tree (GBT) regression, and LASSO regression algorithms (Bhanu Kiran et al., 2020). The efficiency of the model is tested using k-fold cross-validation (Shah et al., 2018; Champaneri et al., 2020) . ...

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The agriculture importance is not restricted to our daily life; it is also an effective field that enhances the economic growth in any country. Therefore, developing the quality of the crop yields using recent technologies is a crucial procedure to obtain competitive crops. Nowadays, data mining is an emerging research field in agriculture especially in the predicting and analysis of crop yield. ... [Show full abstract]

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