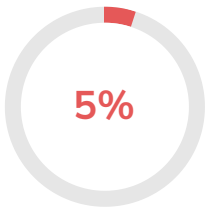
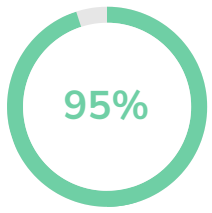
Plagiarism Scan Report

Report Generated on: Oct 16,2022



Plagiarised



Unique

Total Words:	**968**
Total Characters:	**6002**
Plagiarized Sentences:	**2.6**
Unique Sentences:	**49.4 (95%)**

Content Checked for Plagiarism

Abstract

When raising crops, farmers encounter a number of difficulties, including erratic irrigation, subpar soil, etc. A significant portion of farmers, particularly in India, lack the knowledge necessary to choose the right crops and fertilizers. Additionally, both farmers and consumers suffer large losses when crops fail due to illness. Testing the soil is important since it enables the measurement of soil fertility and, consequently, the forecast of crops. The pH of a soil is a gauge of its acidity and alkalinity. pH scales run from 0 to 14, with 7 considered neutral, acidic below that, and alkaline beyond that. We have suggested a system that will have a pH-reading device, and we will estimate the amount of nitrogen (N), phosphorus (P), and potassium (K) in the soil based on the pH of that soil. The use of Deep Learning has not been adequately investigated, despite recent advancements in the automated identification of certain diseases utilizing Machine Learning approaches. Such models are also difficult to utilize due to the high-quality data used in their training, a shortage of processing capacity, and the models' limited generalizability. In order to solve some of these problems and perhaps enhance crop productivity, we develop an open-source, user-friendly online application. We support recommendations for crops, fertilizers, and plant disease prevention in particular. We think that by doing this, farmers will be able to produce more crops with a given amount of land, and crop damage will be less likely to occur.

Introduction

Around 58 percent of the population of our nation is employed in agriculture, making it one of the most significant sources of revenue. A farmer's average monthly income in 17 states, according to the 2016–17 Economic Survey, is Rs. 1700, which leads to farmer suicides and the use of agricultural land for non–agricultural use. Farmers typically choose crops that won't produce well in a certain soil or that are inappropriate for the season in which they will be planted, which is the cause of this. Lower yields are always the outcome of poor crop selection. If the family's only source of income is this, it is tough to make ends meet. Numerous variables, including climatic, geographic, organic, and economic considerations, have an impact on crop output.

On the other hand, conventional farming techniques are useless. It does not effectively utilize all of the resources at hand. Traditional approaches typically lead to soil nutrient depletion and tiredness because production is the main priority. The earth is exhausted since only some crops are produced there. Depending on the crop, there are different pH ranges that are optimal for plant growth. Due to the greater accessibility of nutrients in these pH levels, most plants flourish there. The pH of the soil affects the amount of nutrients that are readily available for plant growth. In more alkaline soil, phosphorus and other micronutrients are present in trace amounts.

The pH of the soil may reveal whether it is suitable for cultivation or whether it needs to be changed for the best possible growth of the plants. When used in conjunction with other factors, pH can help with fertilizer recommendations and the development of the best soil type for the area. The optimum ratio of nitrogen, potassium, and phosphorus is essential for the right kind of soil growth.

Farmers are confused about which crop to grow in a given season because of the volatility of the climate. Due to seasonal climatic variations as well as the importance of essential elements like soil, water, and air, the use of different fertilizers is similarly unpredictable. Crop yields are steadily declining in this

setting. Offering farmers a user-friendly recommender system is the problem's answer. In this study, we present a model that takes these issues into account. The suggested methodology enables crop selection based on environmental and economic criteria in an effort to increase crop yields and meet the nation's rising food demand. In this study, we suggest a method that aids farmers in identifying plant ailments, suggesting the optimum crop for their soil, and advising fertilizers to assist them obtain the most yield possible.

Literature review

Crop Recommendation

In [1], the authors use - Random forests, Artificial Neural Nets, Support Vector Machines, etc. and conclude that Random forests work best for their dataset in crop recommendation. They also create a mobile application system which takes in
location data using GPS and predicts the crop yield for a given crop, in addition to recommending crops based on area and soil quality as input.

Similarly, [2] uses a majority voting on an ensemble of CHAID, Naive Bayes, K-NN and Random Trees for crop recommendation.

[3] data mining algorithms are used on agriculture data. The main criterion for this categorization is that if the pH value is greater than 8.5, the soil is unsuitable for crop cultivation; otherwise, it is. To overcome this problem the proposed system will give necessary suggestion to increase or decrease the pH value of soil

[4] the proposed system is related to increasing the net yield rate of the crop, based on the parameter related to the soil and atmosphere. The model gives the Crop prediction which can be carried out by using the "Bayesian algorithm". Data mining is used to extract a large amount of data from the data set and analyze that data to predict the crop yield and suggest the crop. The limitation of this includes atmospheric prediction that is not accurate.

Plant Disease Detection

The paper [5] used AlexNet and GoogLeNet with and without transfer learning on the PlantVillage dataset to achieve 99.35% accuracy. They also visualize activations and test on scraped data from Bing and Google Search. the authors use VGG, ResNet, Inception-V3 on an augmented version of PlantVillage dataset with 87K images, and conclude that VGG is the best for their settings.

Analysis of dataset with respect to crops(Training data)
location data using GPS and predicts the crop yield for a given crop, in addition to recommending crops based on area and soil quality as input.
https://www.researchgate.net/figure/Analysis-of-dataset-with-respect-to-cropsTraining-data_fig1_317696446

100%

Using transfer learning, the confusion matrix for the validation ...Image-based Plant Diseases Detection using Deep Learning
the authors use VGG, ResNet, Inception-V3 on an augmented version of PlantVillage dataset with 87K images, and conclude that VGG is the best for their settings.
https://www.researchgate.net/figure/Using-transfer-learning-the-confusion-matrix-for-the-validation-of-VGG16-model_tbl2_354362447

100%

Total samples of training and test dataset. - ResearchGateImage-based Plant Diseases Detection using Deep Learning

They also visualize activations and test on scraped data from Bing and Google Search.

https://www.researchgate.net/figure/Total-samples-of-training-and-test-dataset_tbl1_354362447

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