

Agricultural Crop Recommendation based on Productivity and Seasons

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Abstract—Our society is based on its farmers. They are the ones who supply us with all of our food. The nation's whole population is dependent on farmers. Only because of them can we survive on the earth. The farmer is the one who produces and distributes food for the entire nation. In India, one of the most significant professions is agriculture. It is something that each and every human being needs to survive. It is the foundation of a nation's economic structure. It offers raw resources and food. A fairly significant portion of the population has access to employment options thanks to it. The choice of what to produce when can be made by farmers with the aid of a crop yield prediction model. Crop Our society is based on its farmers. They are the ones who supply us with all of our food. The entire population of the nation depends on yield prediction, which entails estimating crop production based on previously collected data. Before cultivating on the agricultural field, the farmer might use the prediction to estimate the crop's production. This enables the farmer to make money.

Index Terms— Farmers, Aid of Crop yield.

I. INTRODUCTION

Agriculture is the foundation of food and as a result, it is essential. According to the most recent figures, the bulk of the people in India, or more than 55%, depends on agriculture every day. Farmers can grow good plant life in accordance with environmental stability thanks to the agro-manner of living. In India, along with tough sugar cane, potatoes, oil seeds, and other crops, wheat and rice are the most widely produced crops. Farmers also produce a lot of non-food items like jute, cotton, and rubber. This is the largest financial center and has a crucial feature in terms of the socio-economic fabric of India. Agriculture solely depends on fertilizers. Historical data on agricultural yield provides the most input for businesses active in this field. These businesses employ agricultural goods as raw materials for manufacturing things like animal feed and paper. The estimation of crop production enables such businesses to make supply chain choices like manufacturing scheduling. The agricultural sector is struggling as crop productivity in India rises. Rainfall during the monsoon season is the main source of water for more than 60% of the plants. Modern agricultural research is increasingly focusing on smart agriculture, which is supported by the usable resources of information technology. The fundamental challenge of yield prediction is one of the areas being investigated.

II. LITERATURE REVIEW

An analysis of research that were discovered in the literature on a particular topic is what is known as a literature review. In the review, this literature is described, condensed, evaluated, and clarified. It offers the study's theoretical framework. By finding and outlining the connections between the literature and the topic of our inquiry, a literature review goes beyond a straightforward information search.

In their innovative method for deconstructing remote sensing photos, Xiang Xu et al. take advantage of several textural properties (2016). Its basis is multiple morphological component analysis (MMCA). The proposed MMCA framework seeks to enhance the signal-to-noise ratio and the data reparability by splitting a picture into multiple pairs of morphological components (MCs) based on several textural parameters. Instead of relying just on a single spatial component of the texture, our suggested strategy allows for the recovery of significant amounts of image texture information. The four textural qualities for MC formation in this study are content, coarseness, contrast, and directionality (including horizontal and vertical).

The technique of identifying the constituent end members and their fractional abundances present at each pixel in a hyper spectral image is known as hyper spectral immixing, according to Hemant Kumar et al. (2016). Various noise sources frequently corrupt hyper spectral photographs. This approach explains the existence of mixed noise and frames the hyper spectral immixing problem in a broad framework. Both sparse and Gaussian noise is amply accounted for by the immixing model. In order to take advantage of the joint-sparsity of abundance maps, the immixing problem was developed. A total-variation-based regularization has also been employed to imitate the smoothness of abundance maps. The resulting optimization problem has been addressed using the split-Bregman approach. a careful evaluation of the outcomes of tests used both fake and actual hyper spectral images The technique of identifying the constituent end members and their fractional abundances present at each pixel in a hyper spectral image is known as hyper spectral immixing, according to Hemant Kumar et al. (2016). Various noise sources frequently corrupt hyper spectral photographs.

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For high quality satellite images, Wei Yao and colleagues employ and assess a modified Gaussian-test based hierarchical clustering technique. The goal of the model is to locate homogeneous clusters at each level of the hierarchical structure to enable later classification and annotation of image data, ranging from discrete scenes to enormous satellite data archives. After segmenting an image into small patches and extracting features from each patch, k-means is used to divide the sets of returning image feature vectors to form a hierarchical structure. We evaluate various distance algorithms to overcome the "curse of dimensionality" issue because picture feature vectors frequently belong to a high-dimensional feature space. The Gabor texture, Bag-of-Words characteristics, and optical image datasets from three separate synthetic aperture radar (SAR).

III. EXISTING SYSTEM

The Soil Analysis Center is now investigating novel soil treatments with a crude method. The soil can be tested with the current approach to just find out how fertile and moist it is. It must be brought to the lab in order to test the soil. It will take a few days to get the results. Ranchers endure a lot in order to get the research results on homestead properties as soon as possible. Farmers consistently worry about downpours for their ideal produce. Different soil additions might be recommended in broad strokes using the pH value. Suggestions for using a PH anode to produce the desired yield will be given, depending on the availability of supplements. Use is made of a copper anode sensor. determines the volume of it transforms the ionic dirt particles into electrical signals. As Human activities have an impact on soils and frequently cause soil degradation, bad luck, or a decrease in soil capacity. These activities include mechanical, urban, and agricultural ones. In order to prevent soil corruption and restore the potential of degraded soils, solid soil knowledge is essential for the creation of appropriate land-use frameworks, soil executives training, as well as a deeper understanding of the earth. Ranchers are unable to foresee or estimate market yield requirements since they follow conventional farming practices. Farmers cannot benefit as a result.

IV. PROPOSED SYSTEM

The suggested method uses a straightforward and effective agricultural choice technique to increase benefits to ranchers. An alternative to traditional methods of yield determination is provided by the emerging discipline of precision agriculture. Traditional methods of determining yield are mostly based on the instincts and impulses of ranchers during harvest. Combining traditional methods with machine learning and data mining will increase the accuracy of crop selection by strengthening the effectiveness of yield selection. Here, we utilize a dataset model to analyze the data obtained from mapping the area using a GPS module in order to estimate crops so that ranchers may grow them, receive a good yield, and sell them on the market. We can predict what to grow thanks to this project also when to mature.

A. Advantages Of Proposed System

- Manual work is reduced.
- Accuracy is increased.
- Crop for the particular soil is identified.
- Time consumption is reduced.
- Concentrated on crop growth based on the factors of the location.
- Forecasting to get good yield.
- Decrease the loss of crop yield
- Increases profit

V. SYSTEM ARCHITECTURE

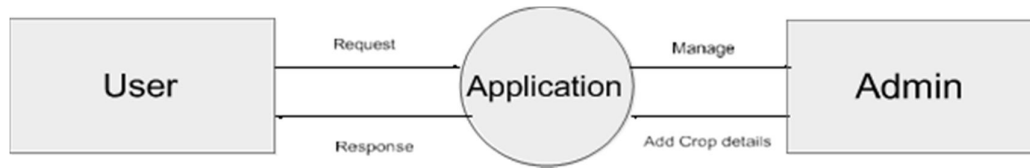


Figure 1: System Architecture of Location Based Crop Prediction

A. Module Description

- Admin
- User.

B. Administrator

Administrator to manage all the users' data and crop details.

C. User

User can view the crop information.

D. Object Orientation

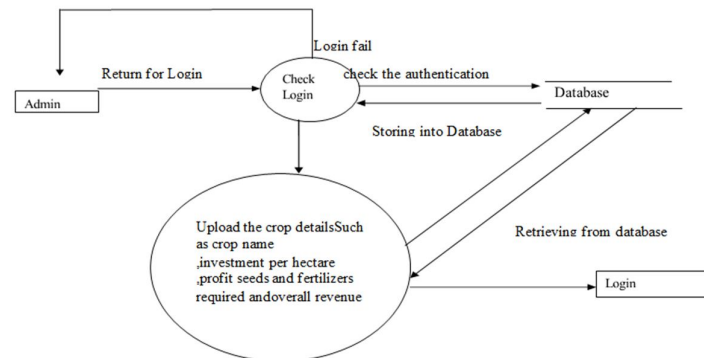


Figure 2: Data Flow Diagram

A data flow diagram demonstrates how information travels through the system and undergoes various changes. It is a graphical method for representing information flow and the changes made to data as it travels from input to output.

V. RESULT AND DISCUSSION

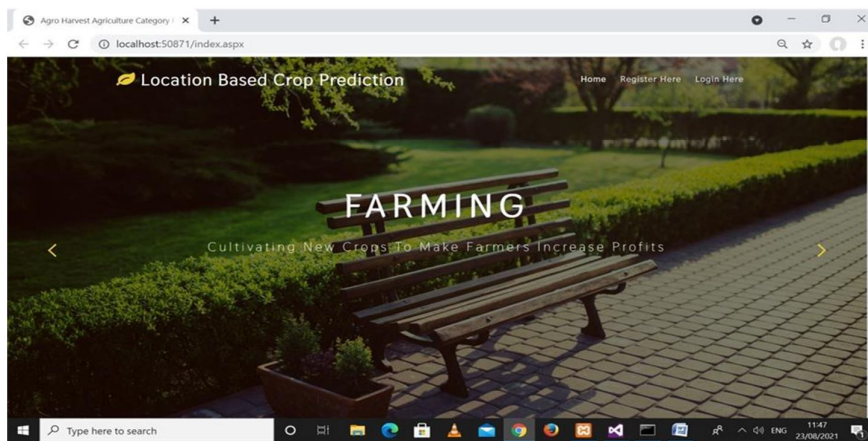


Figure 3: Snapshots

Here is the snapshot of the actual outputs given by the program.

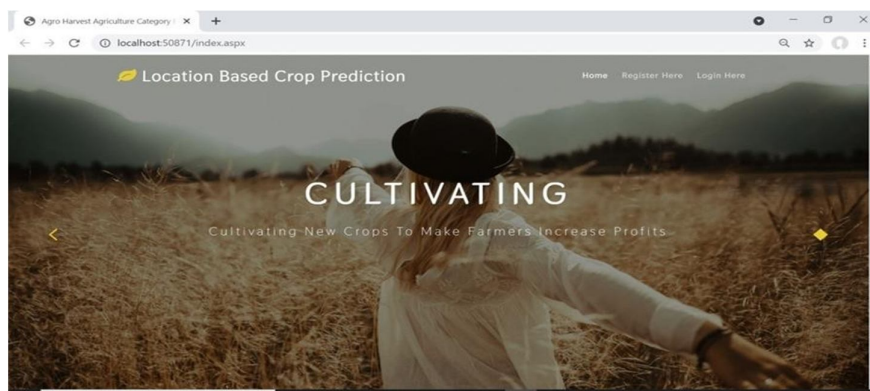


Figure 4: Snapshots

VI. CONCLUSION AND FUTURE SCOPE

The improvements have given rise to numerous novel ideas, including precision agriculture, smart farming, and virtual agriculture. The appraisal of agricultural soils and the detection of hidden patterns utilizing data sets connected to meteorological conditions and crop production facts have both been mentioned in the literature. Conclusion: Research on the application of IT trends like information analytics in the agricultural sector is still in its early stages. As food is a basic human necessity, the urge to obtain the highest yields possible from a gold-desired, beneficially-useful resource would inevitably arise due to population growth. The results of the survey support the need for advanced crop yield analytics tools. There are several scopes of investigations on this research site.

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