V.S.B. ENGINEERING COLLEGE, KARUR

Department of Information Technology

IBM NALAIYA THIRAN LITERATURE SURVEY

TECHNOLOGY: FERTILIZERS RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

DOMAIN NAME: ARTIFICIAL INTELLIGENCE.

LEADER NAME: MAHILA DEVI S

TEAM MEMBER NAME: SNEHA G

RAJAMAHESWARI V

SOWMIYA D

MENTOR NAME: M. SATHYANARAYANAN

ABSTRACT:

Totally 54% of India's land area is deemed arable, making it the world's largest agrarian economy. Soil infertility owing to over fertilization, as well as a lack of access and awareness of contemporary agricultural practices, are the different factors that contribute to low agricultural production. The main purpose of this research work is to develop a machine learning-based recommendation system to increase agricultural productivity. A variety of datasets were used in this study to design and develop advanced models to estimate the crop, recommend fertilizer, and identify plant disease. An algorithm called MobileNet uses an image of a leaf to identify the disease present in a plant. The XGBoost model predicts a suitable crop based on the local soil nutrients and rainfall.
Random Forest [RF] model was used to propose fertilizer and develop ideas for improving soil fertility depending on nutrients present in the soil. When compared

to other approaches, the proposed model delivers a high level of accuracy. Moreover, this article suggests the farmer can increase the crop yield by entering the input values and local soil conditions, wherein the model suggests a recommended crop for that soil with an accuracy of 99%.

INTRODUCTION:

Agriculture is the main aspect of country development. Many people lead their life from the agriculture field, which is fully related to agricultural products. Plant disease, especially on leaves, is one of the major factors of reductions in both quality and quantity of the food crops. In agricultural aspects, if the plant is affected by leaf disease, then it reduces the growth of the agricultural level. Finding the leaf disease is an important role of agriculture preservation. After preprocessing using a median filter, segmentation is done by Guided Active Contour method and finally, the leaf disease is identified by using Support Vector Machine. The disease-based similarity measure is used for fertilizer recommendation.

LITERATURE SURVEY:

Economy of India highly depends on agriculture. Still traditional ways of recommendations are used for agriculture. Currently, farmers use traditional ways of approximations for the amount of fertilizer used and the type of crop to be sown. Agriculture extremely depends on the type of soil and climatic condition of the region. Therefore, it becomes vital to create advancement in this field. With the help of Machine Learning and Deep Learning Techniques we will create a Web App which will be one-stop solutions for information regarding agriculture. Crop and fertilizer recommendation system will help the farmers in increasing their yield production. We are going to take the soil parameters along with the weathers API to figure out the most suitable crop for that region. Using the decision tree and naives bayes algorithm we will make the recommendation model which will use the N-K-P, Ph. value and rainfall as the parameters for training. Based on the crop and region of farming we will recommend the fertilizer and its uses to boost the yield productivity for farmers. Sometimes due to unwanted excess of rainfall or the

pest attack can cause disease to crops. We will use the image classification technique where the user can upload the picture of the affected plant/crop and the system will figure out the type of disease which will be done using Support Vector Machine (SVM) or using the neural network techniques. And this disease detection will suggest how that plant/crop can be cured or prevented. The aim is to make a common system for all the features and provide the results with the best accuracy for all the crops over most of the regions all over India. Also, the price and news section will keep the farmers updated with daily market prices and government schemes and policies related to agriculture and farming.

The point of farming isn't just to take care of the ever-developing populace but at the same time is a basic wellspring of vitality and an answer for the emergency of an Earth-wide temperature boost. Determination of plant ailment is basic for early finding and control of it. The unaided eye method is generally utilized for the conclusion of ailments. This methodology requires experts who can recognize varieties in leaf shading. Ordinarily a similar malady is characterized by a few specialists as a different sickness. This arrangement is exorbitant, in light of the fact that it requires nonstop expert management.

Makers need to follow their yields and perceive the primary signs at modest costs so as to abstain from spreading even a plant malady and spare a lot of income. Recruiting qualified ranchers can't be reasonable, especially in far off geologically detached zones. AI calculations in an image can give a substitute strategy to following plants and an expert can deal with such a way to offer their types of assistance at a lower cost. It incorporates picture division which incorporates the dynamic shape strategy and the picture arrangement approach which incorporates a neural system calculation for foreseeing various kinds of ailments. Or on the other hand grow the way to deal with suggesting the composts dependent on the examination of power with estimations. The world of technical innovation and experiments have brought a new technological movement all over the world.

Despite this, a major portion of the agribusiness community is far away from technical aspects that can make farming easy and efficient. About 60% of total agriculturalists in India are poor and can't afford heavy robotics to take advantage of the technology. Farmers are sometimes oblivious of the disease in the crop and the market prices of the products. This is why they are paid less than what the actual cost is. As a solution, a multilingual platform has been proposed which can be accessed by all people and from where the farmers can easily get to know the current price of their crops in the market. The system is fed with reliable data from the government and is built on the anaconda platform under the TensorFlow environment. The system helps in the prognosis of crop diseases and also furnishes the reason and cure for the disease. It is also helpful to get recommendations about the correct fertilizer as per the quality of soil and other considerations. The system will be very much helpful for poor farmers who can't afford pricey tools to enhance their crop production. Also, it will keep them aware of the current prices of the crop they are reaping and suggest which crop is suitable for which weather condition, which ultimately will be a boon for them.

REFERENCES:

1). Indira, D. N. V. S. L. S., Sobhana, M., Swaroop, A. H. L., & Kumar, V. P. (2022, May). KRISHI RAKSHAN-A Machine Learning based New Recommendation System to the Farmer. In *2022 6th International Conference on Intelligent Computing and Control Systems (ICICCS)* (pp. 1798-1804). IEEE.

2). Bhansali, S., Shah, P., Shah, J., Vyas, P., & Thakre, P. (2022, April). Healthy Harvest: Crop Prediction and Disease Detection System. In *2022 IEEE 7th International conference for Convergence in Technology (I2CT)* (pp. 1-5). IEEE.

3). Valarmathi, N., Venkateshwaran, M., Shanmugam, K., & Sudha, R. (2021, October). Neural Network Based Fertilizers Recommendation System For Disorder Classification and Prediction In Petal Images. In *2021 2nd International*

Conference on Smart Electronics and Communication (ICOSEC) (pp. 1532-1537). IEEE.

4). Kumari, C. S., Kumar, R., Gupta, S. K., Hazra, S., & Paul, M. (2022, July). Predictor Analysis and Proliferation of Fertility and Production for Agriculturalists. In *2022 IEEE India Council International Subsections Conference (INDISCON)* (pp. 1-4). IEEE.