

FERTILIZER RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

Agriculture is considered as the main and the foremost culture practiced in India. Ancient people cultivate the crops in their own land and so they have been accommodated to their needs. Since the invention of new innovative technologies and techniques in the agriculture field is slowly degrading. Due to these, abundant invention people are been concentrated on cultivating artificial products that is hybrid products where there leads to an unhealthy life. Nowadays, modern people don't have awareness about the cultivation of the crops in a right time and at a right place. Because of these cultivating techniques the seasonal climatic conditions are also being changed against the fundamental assets like soil, water and air which lead to insecurity of food.

The machine learning learns the algorithm based on the supervised, unsupervised, and Reinforcement learning each has their importance and limitations. Supervised learning the algorithm builds a mathematical model from a set of data that contains both the inputs and the desired outputs. Unsupervised learning-the algorithm builds a mathematical model from a set of data which contains only inputs and no desired output labels. Semi-supervised learning- algorithms develop mathematical models from incomplete training data, where a portion of the sample input doesn't have labels.

Literature Survey:

[1] The aim of proposed system is to help farmers to cultivate crop for better yield. The crops selected in this work are based on important crops from selected location. The selected crops are Rice, Jowar, Wheat, Soyabean, and Sunflower, Cotton, Sugarcane, Tobacco, Onion, Dry Chili etc. The dataset of crop yield is collected from last 5 years from different sources.

[2]. Recommendation of fertilizers is based on Nitrogen, Phosphorous and Potassium measurements from soil. Nitrogen in the soil is responsible for color of leaves. If low quantity of nitrogen is found in the soil, then plants will have slight yellowish leaves and if quantity is moderate or high, it will have greener leaves. The phosphorous content in the soil is responsible for the reproductive system of the plant. Its value will predict the growth of fruits and flowers of the plants. The potassium content of soil is responsible for its overall growth. Its value will predict how stronger the plant roots will be and will also determine the overall growth process of the plant.

[3]. The proposed system aims to estimate the nutrient content and recommend the suitable fertilizer to be used for higher productivity. Under application of fertilizer results in low yield due to insufficient nutrients present in the soil for the crop. Over usage of fertilizer results in soil pollution. The food products from the polluted soil will be food poisoning and health issues for the consumers. The system consists of four modules as follows: 1) Soil analysis, 2) Interfacing with java API, 3) Data Analytics, 4) Recommendation.

[4]. The proposed system recommends the best suitable crop for particular land by considering parameters as annual rainfall, temperature, humidity and soil pH. Among these parameters annual rainfall is predicted by system itself by using previous year data with SVM algorithm and other parameters are have to be entered by the user. In the output section the system displays a suitable crop, required seeds/acre, market price and approximate yield of the recommended crop and also the system takes NPK values in the input section to display the required NPK for the recommended crop

[5]. The proposed method uses SVM to classify tree leaves, identify the disease and suggest the fertilizer. The proposed method is compared with the existing CNN based leaf disease prediction. The proposed SVM technique gives a better result when compared to existing CNN. For the same set of images, F-Measure for CNN is 0.7 and 0.8 for SVM, the accuracy of identification of leaf disease of CNN is 0.6 and SVM is 0.8.

[6].The plant-based SSNM approach is a knowledge-intensive technology in which optimum fertiliser management for a crop field is tailored to specific local conditions for crop yield, growth duration of the variety, crop residue management, past fertiliser use, and input of nutrients from external sources. Such knowledge requirements have slowed the wide-scale promotion and adoption by the farmers. The need for more rapid uptake of the technology by farmers led to the consolidation of research conducted over the last 15 years across Asia into simple delivery systems enabling farmers to rapidly implement SSNM. The delivery system, Nutrient Expert®, is an easy-to-use, interactive computerbased decision tool that focuses on rapidly providing fertiliser recommendation to farmers while minimizing production risks and increasing the likelihood of profit. The tool acquires the necessary information required for decision making on nutrient management through a series of easy-to answer questions, which essentially mask the rigors of the SSNM principles from the end users while maintaining the robustness of the process.

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