

Agricultural Crop Recommendation System using Machine Learning

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Abstract: *The main goal of these system is to achieve maximum yield and this can be achieved only with proper selection of crop. Selection of crop yield is maximized by considering the pro- portion of nutrients present in the soil. In this system, the farmer / beginner will classify and predict the crop cultivation based on their weather, monsoon and soil type along with their pH level. For classification we have used the Random Forest algorithm to choose the crop*

Keywords: Prediction, Agriculture, Recommendation, Crop

I. INTRODUCTION

India is one of the biggest producers of agricultural products and still has very less farm productivity. The most common problem faced by the Indian farmers is they do not opt crop based on the necessity of soil, as a result they face serious setback in productivity. Also, there are various factors that affects the quality and quantity of crops cultivated. Due to different weather and local conditions these plants are exposed to various diseases. And if these diseases remain undetected may cause some serious losses. In this system, we have used Machine Learning and Deep Learning techniques to solve these problems and help farmers to maximize crop productivity.

II. SCOPE

1. Recommending which crop the user or farmer should grow.
2. Providing information of dealers and fertilizers required.
3. Predicting the disease plant is affected and providing suggestions to cure it.

III. OBJECTIVE

1. To increase the productivity of crops in agriculture.
2. To suggest the best crop according to soil type.
3. To recommend a fertilizers and dealers
4. To predict what disease the plant has affected and provide some information about that disease and suggestions to cure.

IV. IMPLEMENTATION

Systems design is the process of defining the architecture, product design, modules, inter- faces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. Software development process starts with the communication between customer and developer. According to need of project, we gathered the requirements re- lated to project. Requirement gathering is an important aspect as the developer will come to know what customer expects from the project and also he can help a customer to know more features that can be added to project as he is a technical person. The most important thing needed is that communication should be smooth and clear that means developer should easily understand the demands of customer. It includes detailed requirements analysis and project design (algorithm, flowchart etc.). Flowchart shows complete pictorial view of the project and algorithm is step by step solution of problem. Both flowchart and algorithm will be helpful in knowing the overall view of project and serve as a base for development of whole project.

V. PROJECT BREAKDOWN STRUCRURE

The Breakdown Structure is developed to establish a common understanding of project scope. It is a hierarchical description of the work that must be done to complete the deliverable of a project. Each descending level in the Breakdown Structure represents an increasingly detailed description of the project deliverable.

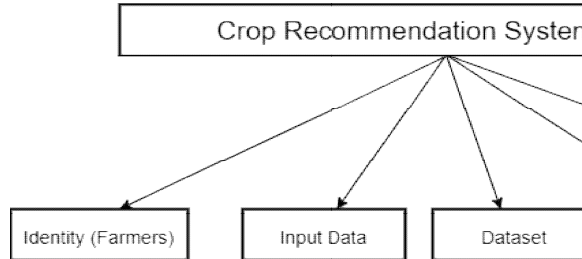


Fig.1.System Breakdown Structure

Farmers are primary user of our system. Firstly farmer access our web portal then fill a registration form. Farmers need to provide their personal information with address of their farm region and area of region. After that the data entered by user will get inserted or stored in database of our system. Then farmers need to provide proper data for getting the appropriate results like crop prediction by the provided form.

V. RESULT

A. Home page:

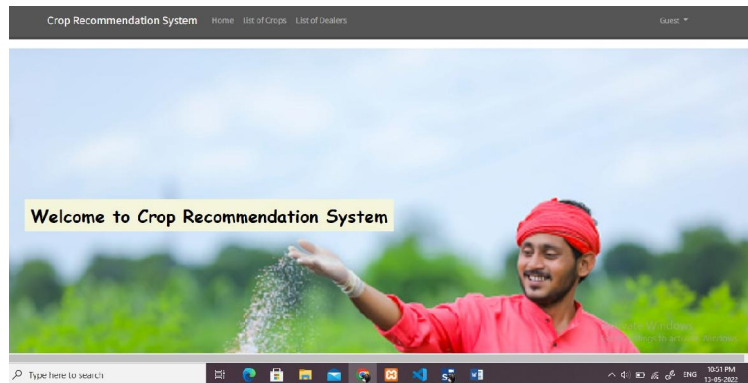


Fig.2.home page

B. Sign up page:

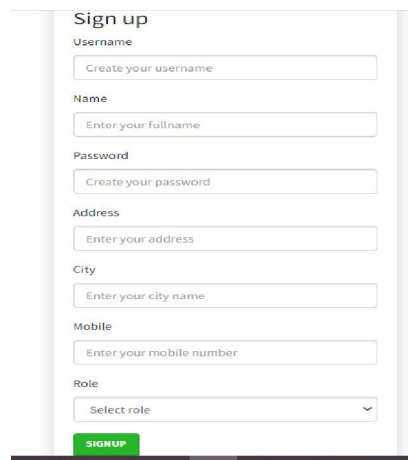


Fig.3.Sign up page

C. Admin Page:

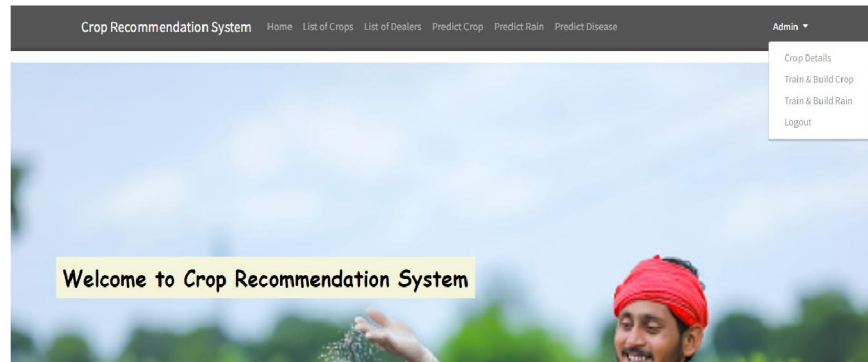


Fig.4.Admin Page

D. Crop list Page:

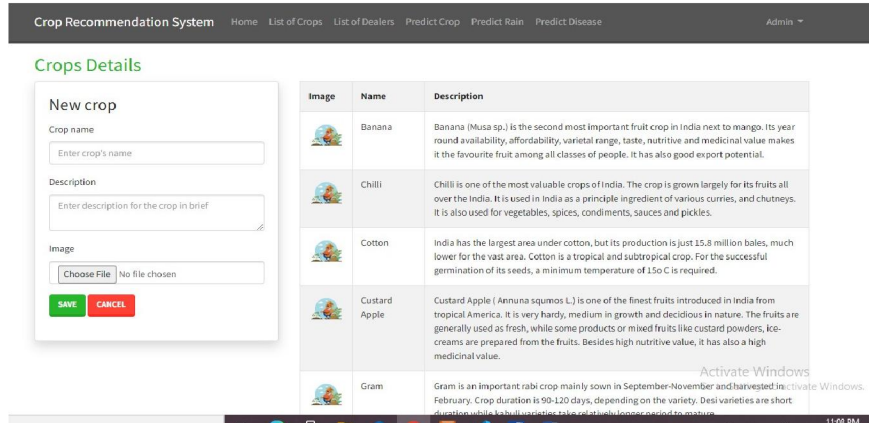


Fig.5.Crop list page

E. Crop & Fertilizer Recommendation Page:

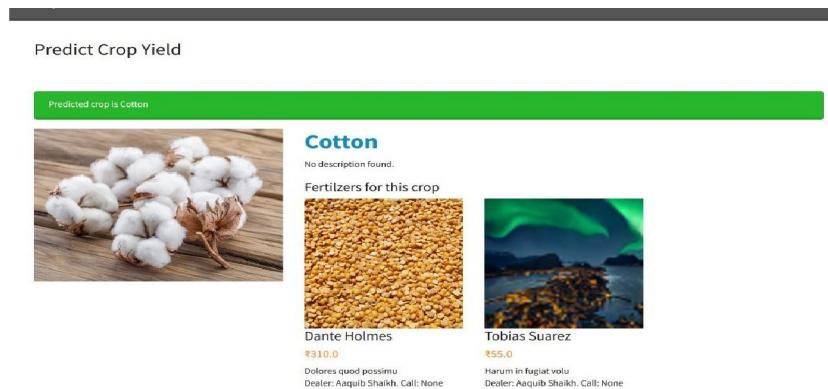


Fig.6.Crop & Fertilizer Recommendation

F. Rainfall Prediction :

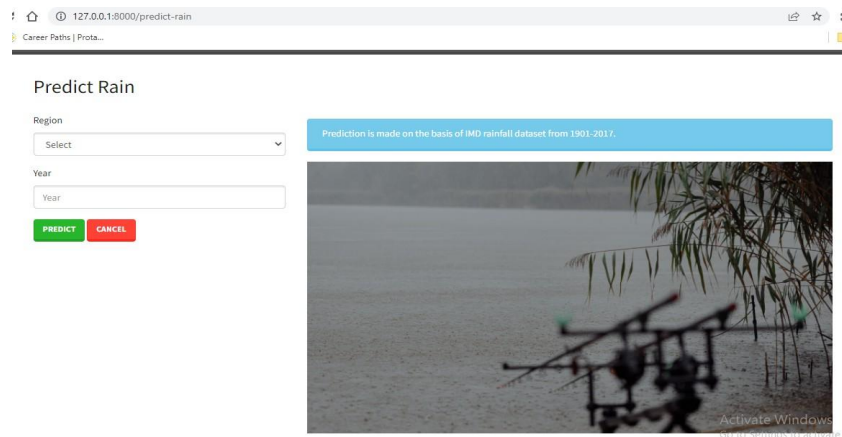


Fig.7. Rainfall Prediction Page.

VI. CONCLUSION

Crop and yield of the crop prediction using intelligent machine learning techniques may improve the crop planning decisions and it becomes easier for farmers to grow and maximize their yield. The crop recommendation system recommends crops to the user based on the data provided by the user. Based on the input, a suitable crop will be recommended which helps the farmers in choosing the appropriate crop for their agriculture land which in turn will increase the yield and the profit. Fertilizer recommendation system recommends a fertilizer plan to optimize the amount of fertilizers applied for suggested crops. Efficient detection and suggestion of remedies for plant disease reduces the risk of crop failure, hence, higher yield increases farmers' economic benefits

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