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Soil Type Grading and Crop Prediction

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Abstract: *In general, agriculture is the backbone of India and also plays an important role in Indian economy by providing a certain percentage of domestic product to ensure the food security. But now-a-days, food production and prediction is getting depleted due to unnatural climatic changes, which will adversely affect the economy of farmers by getting a poor yield and also help the farmers to remain less familiar in forecasting the future crops. This research work helps the beginner farmer in such a way to guide them for sowing the reasonable crops by deploying machine learning, one of the advanced technologies in crop prediction. Naive Bayes, a supervised learning algorithm puts forth in the way to achieve it. The seed data of the crops are collected here, with the appropriate parameters like temperature, humidity and moisture content, which helps the crops to achieve a successful growth. In addition as the software, a mobile application for Android is being developed. The users are encouraged to enter parameters like temperature and their location will be taken automatically in this application in order to start the prediction process.*

Keywords: Machine Learning, Raspberry Pi

I. INTRODUCTION

From ancient days, agriculture is considered as the main source of supply to satisfy the daily needs of human lives. It is also considered a primary occupation, and also one of the India's major industrial sectors. The farmers are ought to follow a traditional naked eye observation and yielded healthy crops without the involvement of chemicals for animals and also to their cultivation land in order to keep healthy diversity. But nowadays, weather conditions are being rapidly changing against the elemental assets to deplete the food and increase the security. In meantime, the GDP in agricultural sector is keep on decreasing, where in 2005 it was about 17.211.1, in 2018 it was 52020 it came down to 2farmers come from rural areas, and if the revenue from crop production goes down, their lifestyle would be influenced by the farms at industry level.

II. MOTIVATION

Main motivation is to minimize the time required for the surveying process which leads to delayed insurance claims. Develop a farmer friendly chatbot to ask queries.

III. LITERATURE SURVEY

Sr.No.	Title	Authors	Methodology
01.	Crop Yield Analysis Using Machine Learning Algorithms	Fatin Farhan Haque, Ahmed Abdelgawad, Venkata Prasanth Yanambaka	In this paper author summarized:- Agriculture is not only a huge aspect of the growing economy, but it's essential for us to survive
02.	An Analytical Approach for Soil and Land Classification System	Prof. A. V. Deorankar	In this paper author explained that the process of analytical soil classification.
03.	Crop Yield Prediction using Machine Learning Techniques	Ramesh Medar	In this paper author proposed about crop prediction using machine learning.

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IV. BLOCK DIAGRAM

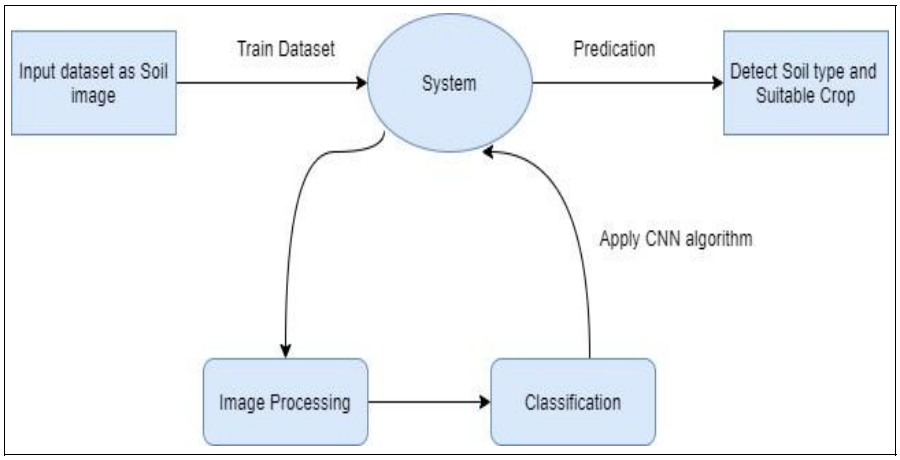
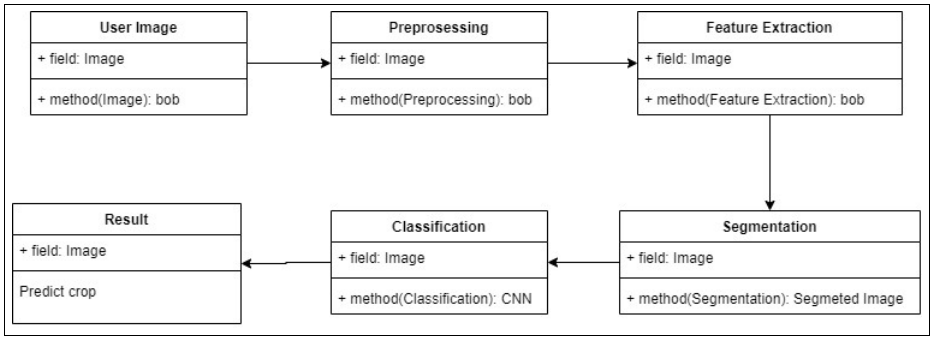


Figure: Data flow(1) diagram

V. PROPOSED SYSTEM



VI. SYSTEM ARCHITECTURE

- In this module, the Admin has to log in by using valid user name and password. After login successful he can do some operations such as View All Users and Authorize, View All E-Commerce Website and Authorize, View All Products and Reviews, View All Products Early Reviews, View All Keyword Search Details, View All Products Search Ratio, View All Keyword Search Results, View All Product Review Rank Results.
- In this module, the admin can view the list of users who all registered. In this, the admin can view the user's details such as, user name, email, address and admin authorizes the users.
- View All Products Search Ratio, View All Keyword Search Results, View All Product Review Rank Results.
- In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password Once Login is successful user will do some operations like Add Products, View All Products with reviews, View All Early Product's reviews, View All Purchased Transactions.

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6.1 UML Diagram

Unified Modeling Language is a standard language for writing software blueprints. The UML may be used to visualize, specify, construct and document the artifacts of a software intensive system.UML is process independent, although optimally it should be used in process that is use case driven, architecture-centric, iterative, and incremental. The Number of UML Diagram is available.

Class Diagram. Use case Diagram. Activity Diagram. Sequence Diagram. Package Diagram Object Diagram

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VI. METHODOLOGY

6.1 Problem Statements

We need to know the features and characteristics of various soil types to understand which crops grow better in certain soil types. Machine learning techniques can be helpful in this case. Here we can use clustering technique to group data, and then classified the data by the order of soil and places with Random Tree algorithm. Then apply apriority Mining process to generate an association rule for finding suitable crops for the specific soil. Soil series and land type combine represents the soil class in the database.

VII. CONCLUSION

Agriculture is the field which helps in economic growth of our country. But this is lacking behind in using new technologies of machine learning. Hence our farmers should know all the new technologies of machine learning and other new techniques. These techniques help in getting maximum yield of crops. Many techniques of machine learning are applied on agriculture to improve yield rate of crops. These techniques also help in solving problems of agriculture. We can also get the accuracy of yield by checking for different methods. Hence we can improve the performance by checking the accuracy between different crops.

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