SMART AGRICULTURE SYSTEM USING DATA MINING TECHNIQUES

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ABSTRACT: *Agriculture is the backbone of the economic growth and poverty reduction solution especially in rural areas. In India more than half of the population, about seventy percent is directly or indirectly relying on agriculture as a source of livelihood. Due to unexpected of climate factors the agricultural productivities in India are continuously decreasing in future. The main objective is to design an agriculture system supporting to farmers by using advanced data mining techniques that are classification and clustering. It provides guidance to the farmer's i.e. step by step information will provide increase crop productivity.*
Keyword:Datamining,Classification,Clustering

I.INTRODUCTION

In rural areas farmers are still struggling for their basic needs. Even though they do a lot of struggle and hard work, most of rural areas farmers do not have good productive soil (fertilizers) and seed, their plants have diseases and pests issue. Still they are used to traditional irrigation practices which are very far from the modern irrigation.

Farmers don't have enough key information of agriculture market to get a good price and sometimes they could not get market where they could sell their products on time, products that have very short life like its products or vegetables and fruits. Due to un-reliable market information they often depend on middle men who take advantage of their illiteracy or unawareness of market information and thus they cannot get enough income. Data mining techniques are use to overcome the above problems for farmers in agriculture to in grow good yield.

Data Mining is the process of extracting useful information from large set of data the goal of the data mining process is to extract the knowledge from an existing data set and transform it into a unique human understandable format for some advance use.

Data mining techniques have been proposed for solving agricultural problems. Here, K-means and k-nearest neighbor technique, etc. is used for forecast of pollution in atmosphere classifying soil combination with GPS and simulating daily perceptions and other weather variable. These data has includes agriculture parameter, environmental attributes and geographic attributes. These data has to be analyzed by for obtaining a useful pattern which helps to analyze the agriculture productivity. By extracting this information through the satellite, internet which will find the correlations or patterns among dozens of field's in large relational databases. After processing system will give the results according to the user requirement i.e. either water required /Hector, Which fertilizer to be used at that current stage or Pesticide to be used if crop suffers from any disease and also provide market price information for sale the crop or cold storage details for storing the crop.

The system focus on four major issues in agriculture i.e.,Water requirement for crop based on soil condition, crop stage, temperature, etc. Fertilizer usage depends on soil condition and crop condition. Soil condition basically depends on the available micro-nutrients as well as macro-nutrients. Pesticide usage is sharply depend on the environmental factors i.e. humidity, pollution, temperature, etc. There are various physical factor and environmental factors that affect the decision about the Water, Fertilizer and Pesticide usage for crop. Timely accurate market price information provides.

II.PROPOSED METHOD

Initially farmer has to send soil for testing and feed the soil testing report details and the crop information such as crop name, crop stage, etc. first time farmer has to save the exact location of farm so that the longitude and latitude of farm is identified which is useful to get the exact temperature of farm location.

Smart Agriculture system covers four issues of farming

Water required for Crop- Extract the useful information from large set of data to calculate required water i.e. Temperature ,Crop Name ,Crop Stage ,Soil Condition ,Evaporation Rate ,Crop Factor are preprocessed then the system give the result as water required per hector.

Fertilizer to be used at particular stage according to the micro-nutrient as present in soil- Extracts required information i.e., Crop Name, Crop Stage, Soil Chemical Condition and growing period are preprocessed then the system fertilizer name and its quantity will be given as output.

Pesticides to be used depend on various environmental factors- Humidity and temperature will be retrieved from satellite and from online sources and then all the other factors will be selected by farmer along with the symptoms of disease for example holes on leaves, insect attack on crop, etc. according to all this data cluster will be formed and then pesticide name and amount of pesticide, and also number of days to apply fertilizer according to the stages will be given as an output.

Timely accurate market price information provider-
with farmer request selected factor i.e Crop Name, Quantity by preprocessing it extract the current day market price and if farmer wants to store product we can provide nearby cold storage details.

CONCLUSION

The clustering algorithms used for computing in this system are the logics written for pattern matching which elegantly returns the perfect outputs as per the input parameters passed, by using the data mining. Because of autonomous in nature, time-to-time handling or changing of the data. It will precisely focus on the growth and cultivating of crops and will increase the productivity by applying its techniques. Advanced agricultural system will also alert the farmers about critical weather conditions which will again make every possible anomaly to be sustained and the system giving crop wise marketing functions are provided. Water is limited resource and its conservation is the biggest crisis nowadays, but using this system will aid into proper utilization of water and no wastage or under-over supply.

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