PORTRAYING THE IMPACT OF DRY SPELL ON FARMER HARVEST GENERATION IN INDIA UTILIZING AFFILIATION STANDARD MINING

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Abstract - *Our agricultural production is scattered and agricultural consumption is expanded, therefore the connections are poor between small scale production and market. We propose the agricultural marketing Information recommendation system which supports cloud computing, so as to supply accurate recommendations for farmers. We propose a system to intimate farmers about the crops to be seeded within the specific season and also make the farmers conscious of the present market rate of the merchandise. This type of system is far beneficial for the younger generation to adapt to the normal farming technique.*

Key Words*: *Agricultural marketing Information, crops, location, seed, farmers, soil, field.

1. INTRODUCTION

Farmers are to be registered in certified organization to manage all the farmer related issues and for suggestions. The certified organization provides information that covers a periods from the starting process to the multiple farming activities like fertilization suggestion, irrigation process etc., until post harvest management. By adopting the use of recent Information technology in conjunction with approved management techniques, the event of farm management Information systems is that the new way of computing farm production in terms of product standard and operation efficiency.

There is an information flow that provides the farmer with external knowledge and decision support and so on. In sort of services that helps farmers to manage and keep control of their farms and crops, by supporting all the essential agricultural activities consistent with set of excellent agricultural practices.

The motivation of the project is to monitor the farmer's data and authorized advisors can monitor the farmers' agricultural activities and suggest them about their farm status and best planning of farm and crop works. Fig 1.1 shows farmer spreading fertilizers. Where farmers can use wise fertilizers by experts suggestion under our system.

Fig. 1.1 Farmer spreading fertilizers

2. EXISTING SYSTEM

In the existing system, the farmers don't have enough knowledge on which soil is better for which crop and they don't know more about increasing the profit. In the existing system buying and selling a product is completely doneby manually. Price of the merchandise is fixed by the vendor. All the small price of the merchandise to be sold or purchased is maintained manually. Sellers or buyers unable to know the entire Information about the merchandise. Slow agricultural growth may be a concern for policymakers as some two-thirds of India's people depend upon rural employment for their lives. Current agricultural practices are not economically sustainable and India's yield for several agricultural goods are low.

Drawbacks of Existing Work:

- External hardware is used.
- Very Expensive.
- Lack of knowledge on selling crops.
- All process are done manually.
- Not able to give complete details about products.
- Lots of chances to get cheated by others.

3. PROPOSED SYSTEM

In our proposed system bidding problems are avoided. No external hardwares are required for our system. This type of system is much beneficial for the younger generation to adapt to the traditional farming technique. Bidding is a tedious task, but our proposed system gives the actual market rate then it clarifies the user about the present market rate to avoid the farmer bidding or getting cheated by the retailers.

Advantages of proposed system:

- It Avoids bidding problem.
- Flexible to users.
- Cost is not an issue because its a web based application.
- Able to store all details of products.
- It collects all informations about seeds.
- Well known knowledge on fertilizers which farmers are using.

4. LITERATURE SURVEY

Few of the existing works are discussed as follows:

Deepak Muruganet et al.[1] have developed a method for better agricultural production and food management. In recent years, drones are used for accurate agriculture monitoring at smaller scales, and for past few decades, satellite data are getting used for land cover categorization and agriculture monitoring at larger scales. Repeated usage of drones has got to be minimized by this method and hence an adaptive classification approach is developed, which works with image statistics of the chosen region. The proposed approach is successfully tested and validated on different temporal Landsat 8 data.

Hubertus Siebaldet et al.[2] explained about Real-time acoustic monitoring of cutting blade sharpness in agricultural machinery. Cutting processes are one of the important procedures in harvesting technology. These cutting measurements were performed with piezoelectric accelerometers and signals were recorded at a rate of 51 kHz. An honest interrelation was found between the condition of the blades and the structure-borne sound. The statistical classification analysis is done with support vector machine (svm) method, which allowed an attribution of the blade sharpness (described by means of executed grinding cycles) with an accuracy of 0.76.

Nived Chebrolu et al.[3] have developed a system to register UAV images of agricultural fields that show large variations in the visual appearance over the crop season. This method utilizes the inherent geometry of the crop arrangement in the field by exploiting the negative information about missing crops. Continuous crop monitoring is an important aspect of precision agriculture. It illustrate that the reconstructed 3D models are qualitatively correct and the registration results allow for monitoring growth parameters at a per plant level.

D. Herrera et al.[4] have presented the modeling and identification of an autonomous vehicle that has been designed for agricultural tasks. This is mainly due to the lack of labor and the need to increase production by making better use of arable land. Therefore, it is necessary to introduce and generate automatic agricultural systems for both primary tasks and secondary tasks. The primary tasks are sowing, harvesting, fertilizing and the secondary tasks are planting supervision, weed detection, sustainable crop management. The potential benefits of these technologies applied to agricultural tasks include increased productivity, application precision, and operational safety.

Joan R. Rosell-Polo et al.[5] used light detection and ranging sensors in terrestrial measurement applications to map areas. The K2-MTLS can be used for scanning objects and crops. This paper provides a low-cost alternative to MTLS based on the combination of a Kinect v2 depth sensor and a real time kinematic global navigation satellite system (GNSS) with extended color information capability. They conclude that the better performance is obtained when a FOV of a single slice is used for low measuring speed .

Shubhangi S Wankhede et al.[6] developed a method to overcome drought condition. Drought is a complex, natural hazard that affects major industries including agriculture. This paper has demonstrated the impact of rainfall variation on crop yield. The Methodology used is Association Rule Mining. It can be used to find associations, correlations and frequent patterns among set of items in large data repositories. This techniques has been implemented to show the associations between rainfall and impact on crop yield. They concluded that rice production can be good if the rainfall is average or good.

Junyong Liu, Yanxin Chai, et al.[7] have developed a mothod based on pseudo-energy measurement. In past decades, both agriculture and power systems have faced serious problems such as the power supply shortage in agriculture and difficulties of clean energy consumption in the power system. This method is based on the pseudo-energy measurement as introduced by Hughes for proving the stability of implicit- explicit algorithms. This paper proposes a roadmap of coupling clean energy power systems with smart agriculture. Aiming for the management of clean energy consumption in agricultural production. The benefits of coupling agriculture is clean energy systems are to pave a path for using smart agriculture to consume excessive clean energy generation .

MashoodNasir, Hassan Abbas Khan et al.[8] have explained about the design, analysis, and implementation of a highly distributed off- grid solar photovoltaic DC microgrid architecture suitable for rural electrification in developing countries. Detailed analysis on power flow, loss, and system efficiency was conducted. It was done by using the Newton–Raphson method. The results of analysis showed that the proposed distributed storage architecture can enhance distribution efficiency by approximately 5% more than other LVDC architectures.

Francisco Yandun et al.[9] explained about the Precision agriculture. Precision agriculture is a key to improve the productivity and efficiency in the use of resources. It helps to achieve the goal under the diverse challenges currently faced by agriculture mainly due to climate changes, land degradation, availability of farmable land, labor force shortage and increasing costs. Methodologies are developed for non-invasive plant physiology assessment, employ photosynthesis and fluorescence measurement systems, as well as Multispectral and thermal sensors. This paper presented a survey of the main sensing systems in precision agriculture for plant structural characterization, plant/fruit detection, and plant physiology assessment.

5. METHODOLOGY

Commonly used algorithms for the implementation are as follows:

1. K-means:

K-means algorithm is an iterative algorithm that tries to partition the dataset into K-pre-defined distinct non-overlapping subgroups (clusters) where each datum belongs to just one group. It tries to form the intra-cluster data points as similar as possible while it keeps the clusters as different (far) as possible. It assigns data points to a cluster such that the sum of the squared distance between the information points and therefore the cluster's centroid (arithmetic mean of all the information points that belongs to the cluster) will be minimum.

2. Support Vector machine (SVM):

Support Vector Machines are feasibly one among the foremost algorithm that talks about machine learning algorithms. A hyperplane can be a line that splits the input variable space. In SVM, a hyperplane is chosen to separate the points within the input variable space by their class, either class 0 or class 1. In two-dimensions, you'll visualize this as a line and let's assume that everything among the input points are often completely separated by this line. The SVM learning algorithm will find the coefficients that results in the best separation of the classes by the hyperplane.

3. Naive Bayesian Algorithm:

The Naive Bayesian classifier is predicated on Bayes' theorem with the independent assumptions between predictors. The Naive Bayesian model is straightforward in the creation with no complicated iterative parameter estimation which makes it particularly useful for very large datasets. It often outperforms more sophisticated classification methods.

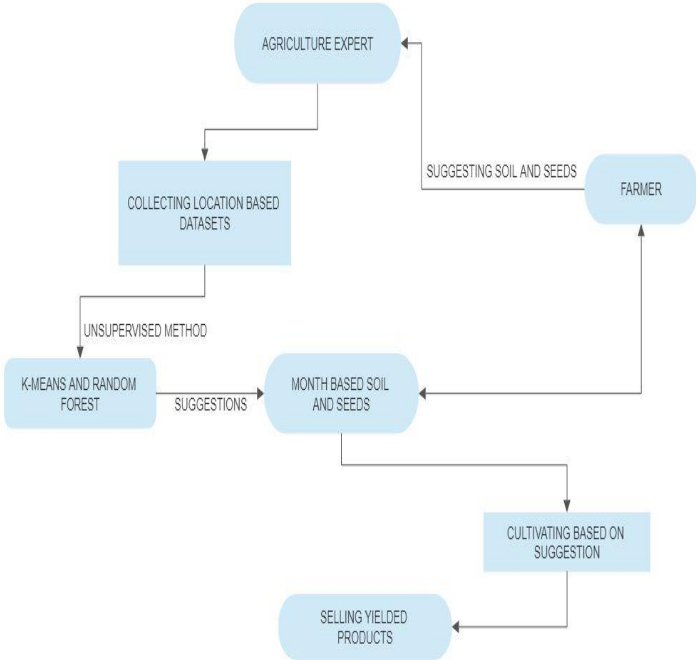

Fig. 5.1 Architecture diagram

Fig. 5.1 shows the architecture diagram. The farmer will login to the webpage and ask the suggestions from the expert. They will collect the data sets by using the k-means alogirthm which is used to find the nearest location. Then the expert will suggest the month based soil and seeds. According to the suggestions given by the expert the farmers can cultivate the seeds.

Common methods used for the implementation are as follows:

Administrator Endorsement:

The farmer will register in the website with their own details like username, password, contact details, address details. The admin will verify the details and approve them. After the approval given by the admins the farmer can sign in and ask for a query with expert. The farmer can also ask query about the fertilizer and also much related information about the agriculture.

Monitor and maintain the crops:

Farmer can now get online information on the amount of fertilizers that they must apply to a particular kind of soil and about the crop from the expert. This will help them to overcome the problem of over usage of fertilizers that is eroding soil health. We have developed a web-based system that calculates the quantum and quality of fertilizers that should be applied to the soil for targeted yield.

Predict and detect pests:

Sometimes the farmer will be unaware of exact price about the crop that they sell in the market. The small level farmer often sell their product to local traders, this acts as an important bargaining tool. Also, farmers can decide on whether to take product to the market or to delay it based on the information on current price advised by the Expert.

Online Computerized agri-auction production:

Makes the farmers to get the best price for their products. Farmerswill get to understand the demand within the market of the products which they are selling. This will help the farmers to concentrate on the crop which is on high demand. The Online Bidding Application helps the farmers to meet the customers directly. Farmers have an option to choose their customers who quoted might safe by their own. They can choose to whom they have to sell their products.

Fertilizer expert system:

A more practical option is to form better use of the land currently dedicated to agriculture, although this also faces some challenges. There will be sub-sector development for agriculture like seed production, organic production, aggregation of product and first processing, poultry production, etc. All these information will be contributed to the farmer to energize the local economy for multiplier effect out of the agriculture land and crop details.

6. IMPLEMENTATION

Fig 6.1 shows the home page of the system where the user, agent and expert can give their details that can be accessed for all the actors of the system for further process.

Fig 6.2 shows the user registration details. The farmers should register this form by filling their details along with their profile photo. Informations provided by them will be validated by Admin.

Fig. 6.1 Home page

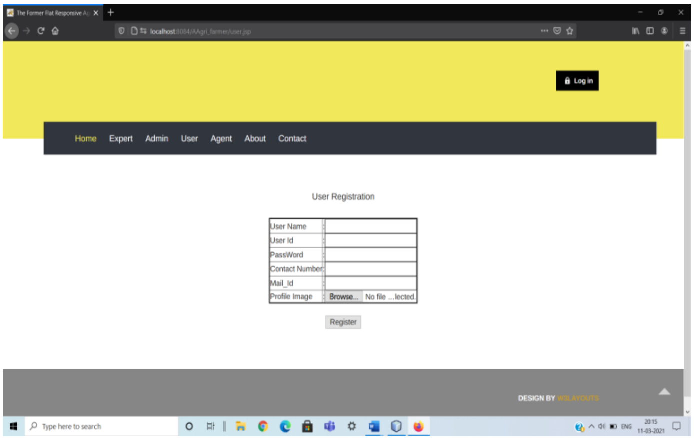

Fig. 6.2 User registration

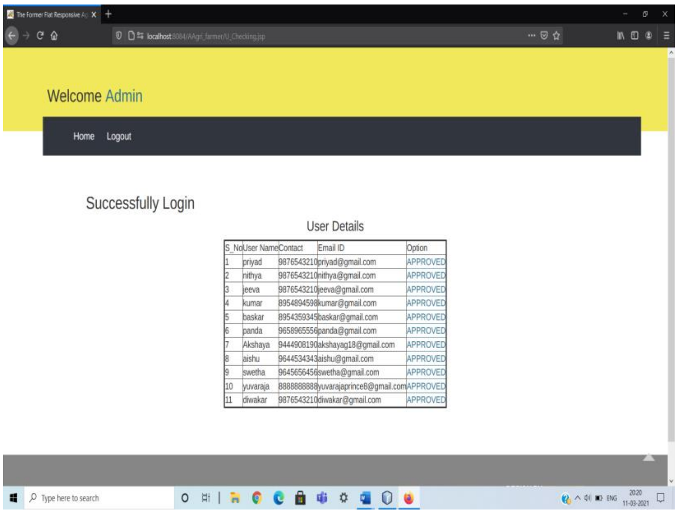

Fig. 6.3 Approval for registration

Fig 6.3 shows the approval for the registration. Admin has the rights to approve or reject the users by checking their profile. When admin approves their profile, Then the user can login and they can approach further.

Fig 6.4 shows the Global Positioning System(GPS) location fetching. Once the user got approval from the admin, they can login by using their credentials. Then the system will fetch the nearest location and it will show the details of the crops and also it shows the profit and loss percentage of the crops.

Fig 6.5 shows the view and analysis option. In this option the user can choose any of the district and weather condition based on their interest. The system will show the previously collected data sets for the respective weather selected.

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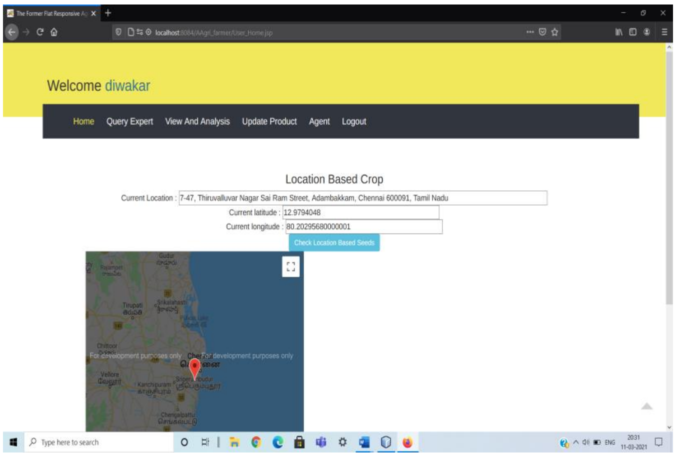

Fig. 6.4 GPS Location Fetching

Fig 6.6 shows the product updation. Once the farmer completed all the process he can sell the goods by using this feature by entering his product details.

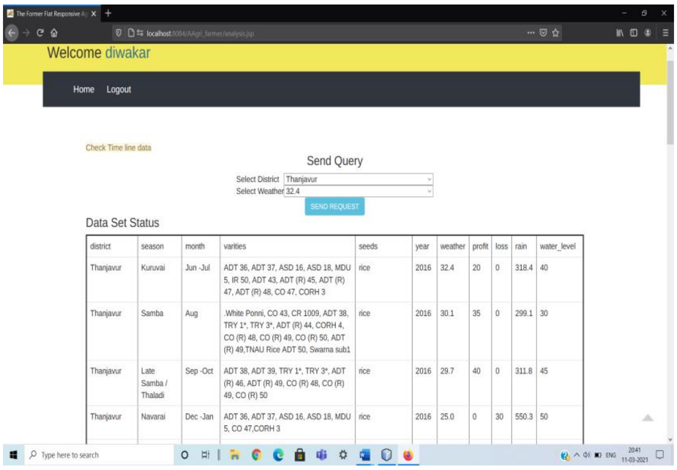

Fig. 6.5 View and analysis

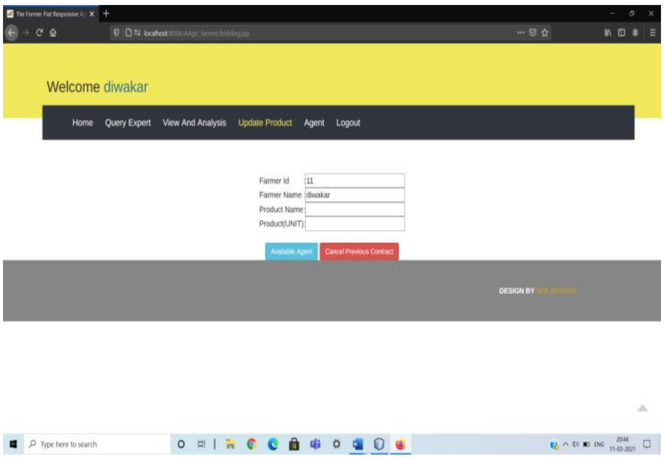

Fig. 6.6 Product updation

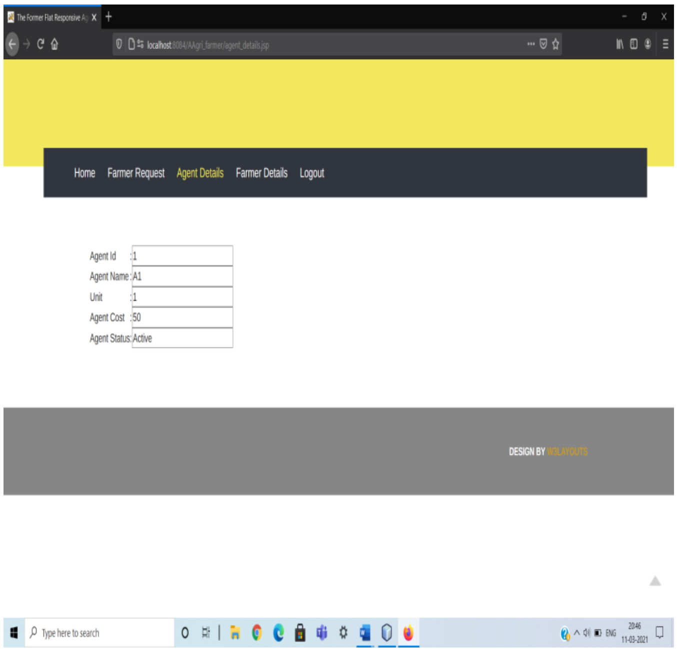

Fig. 6.7 Agent module

Fig 6.7 shows the agent option in which the farmer can sell his goods without any third party help. By using this feature he can make more profits.

Fig. 6.8 shows the updation of the farmers detail who sold their products after harvesting. By using this webpage farmers make more profit where the complete communication takes place between agent and farmer.

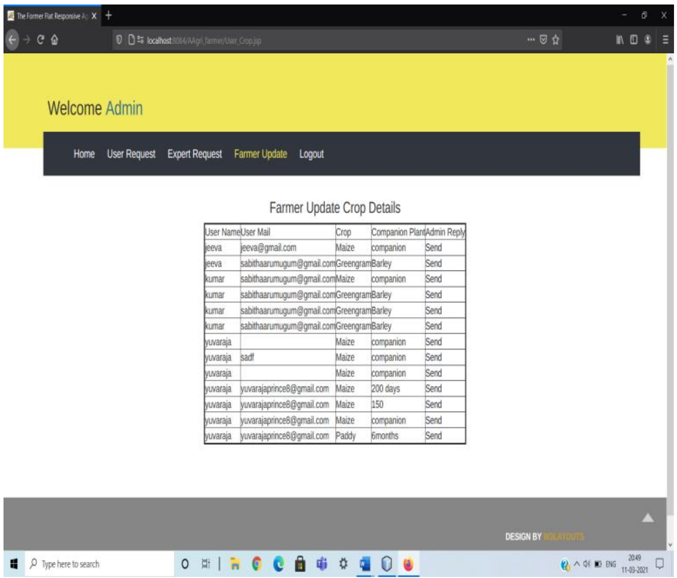

Fig. 6.8 Farmer update

7. CONCLUSION

Technology advances in agriculture is leveling the playing fields for small scale farmers in rural areas. The number of users who adopt such technology, however, remains relatively low. Understanding the factors promoting or limiting the acceptance and adoption of latest data system may be a key challenge. In future we will develop it as an real time application for the maintenance of crops and development of farmers knowledge.

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