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Analysis of the Agricultural Data Using Machine Learning Techniques

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Abstract--- *Information Communication and Technology (ICT) is one of the widely used area which when used along with farming is often known as E-Agriculture. It is one of the most prominent application that is being established as well as used as a revolutionary solution to utilize ICT within the countryside. A broad range of remedies for some farming obstacles is offered by Information Engineering. Though constant cropping modifications, dirt physiochemical details, enzymes as well various microorganisms that causes replant issues are some of the main features that needs to be known for proper farming, understanding of basic ground related, as well as the amount of liquid content in the soil, are definitely some of the major components of farming. In order to find a solution of proper farming, in this paper, we have proposed a single operating system which in turn helps you to evaluate the details of the cultivatable soil together with the assistance of receptors and data mining tactics. Machine learning techniques like K Nearest Neighbour(KNN) will give an perfect assistance to the farmers, as the network would provide a better solution of what kind of crops needs to be grown and what is the expected additional features required for getting the best crop at the given land. This would benefit the farmer to a greater extent, as it would let them grow the crop that best suits the land.*

Keywords--- *Agriculture, Farming, ICT, KNN.*

I. INTRODUCTION

Agriculture is one of the most traditional and predominant profession carried out by most of the population at the rural side of India. Almost around 65.70% of the Indian population is being dependent on farming and farming related business for their day to day living. One of the most difficult problems that the farmers face is the management of the information related to the farm and crop types. All crops are not grown in all soils, and there needs to be additional precautionary measures taken in order to grow a particular type of crop in a soil. It is very essential to know these parameters before harvesting the crops in the soil, which would decrease the amount of failure of proper growth of the crops to a greater extent. The information about farming can be found by using numerous sources such as printed media, visual aids, and audio, internet, TV, newspaper, movable, etc., however the platforms, as well as various information provided are dissimilar. Thus it's quite difficult for farmer to rely on the information and also to analyze various information about the crops and soil Sometimes lot of hand measures are needed while processing the information. The further advancement within the farming technology directly boosts the Indian Economy and also the other way round is additionally the case. Movable apps within the area of farming could be the greatest solution to boost countries' agriculture creation. Nowadays farmers are having several information or facts regarding farming as seed products, harvest choice, harvest procedures water, fertilizer,

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pesticide sprays, etc., that come from different sources that are sold out to a variety of places based on the origin, it's vendors or producers. The information owning format that is different as well as might have various particular contents could be heterogeneous within their format and structure. Thus it's necessary to get a method out of the location where the essential information can be obtained on the farmer straightaway. Innovative possibilities are formed by smartphone know-how for growers.

Farmers are able to have an inexpensive smartphone as well as the specific software program to get amenities that couldn't be situated on the hands of theirs prior to. A number of applications are already created for acquisition of details like niche, AgroMobile, livestock management, Krishiville and so on. In this paper, we have created a model using K Nearest Neighbour (KNN), where the network would be processing various details of crops and soils and various would be getting various parameters to grow it. This network would be useful for finding out the best crop that could be grown at particular type of soil for the farmers. This model would be greatly useful for the farmers and would also contribute for the development of the Indian economy also.

II. RELATED WORK

Machine Learning Techniques has provided birth to a lot of brand new applications and technologies which are hugely utilized in different areas [1], automatic robot course preparing [2], agriculture needs within a specific area [3] and also average coverage category [4]. It's a procedure for studying a certain undertaking with no man treatment as well as enhancing the overall performance just by a consistent mastering procedure. Machine learning has 2 types: supervised studying [5], the location where the labeling is provided for the functions on the instruction dataset as well as unsupervised studying [6], Several classifiers worn predominantly contained machine learning methods are KNN which could deal with any platform and application oriented scheme [7], Decision Trees, Naive Bayes as well as Logistic Regression. Which all techniques are not that much satisfied to this model. When bigger datasets are being utilized within an application program subsequently the usage of K Nearest Neighbor (KNNs) [8] is chosen for exact outcomes and Much more usually the unwanted weeds are experiencing features that are similar because the harvest and also consequently can't be differentiated through the naked eye. The nutrient information in dirt is reduced by them and therefore upsetting harvest quality as well as efficiency [9].

III. PROPOSED APPROACH

The title Agri Buzz' suggests Intelligent Agriculture. Agri Buzz' is a unit farmer managing site program. The farmers will be benefited by this site to market the agricultural produce online of theirs and indicates very best -in-practice farming procedures. Thus, giving a broader market place as well as supporting them to not limit them to the neighborhood store. The wholesalers are helped by it as well as merchants within getting created out of the bigger amount of growers. Therefore, makes it possible for the wholesale suppliers as well as merchants within growing the business of theirs. It includes internet buying plant foods, pesticide sprays, tools and machinery, etcetera. The farmers are helped by it to keep an eye on the agricultural production of theirs with attributes like virtual calendar, water forecasting, etc. and also allow them to employ laborers, which, can help the farm laborers to locate little tasks by getting an effort profile within the site. Being an entire, an idea of the virtual farming industry to the users are provided by Agri Buzz'.

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The suggested program additionally assists the farmers to search for the present need of harvest grown in the own land of theirs, which leads to understanding regarding the harvest blades' rotation as well as farmer's development. The software enables to fairly quickly watching what's occurring on the farm as well as what should occur subsequently. The target on the undertaking is providing growers with a reliable and effective information or tool for dealing with farming. Permits people to prepare tasks, manage employees, computer monitor farming inputs, as well as farming machinery, make use of, take on financial and economic evaluation of recreation i.e. permits farmers to shoot cropping, machinery methods as well as gain access to this particular info. Owners are able to register complete heritage of plants out of when they're sown via to harvested, record chemical substance as well as fertilizer use; such as kind, speed & particular date utilized as well as prevent monitor of machinery maintenances. Sometimes farmer is mixed up to have a choice concerning number of fertilizer, time and pesticide to accomplish certain agriculture measures. Based upon planting a particular date of harvest, the farmer is going to get reminders regarding the use of fertilizer as a timetable as well as a tentative growing routine that is created by harvest pro.

KNN Algorithm

An KNN has a number of benefits but one of the more realized of these is the reality that it is able to discover via watching information sets. This way, KNN is needed being an arbitrary feature approximation application. These kinds of applications simply help to calculate the best economical as well as perfect techniques for turning up at ways while determining computing operates or even distributions.

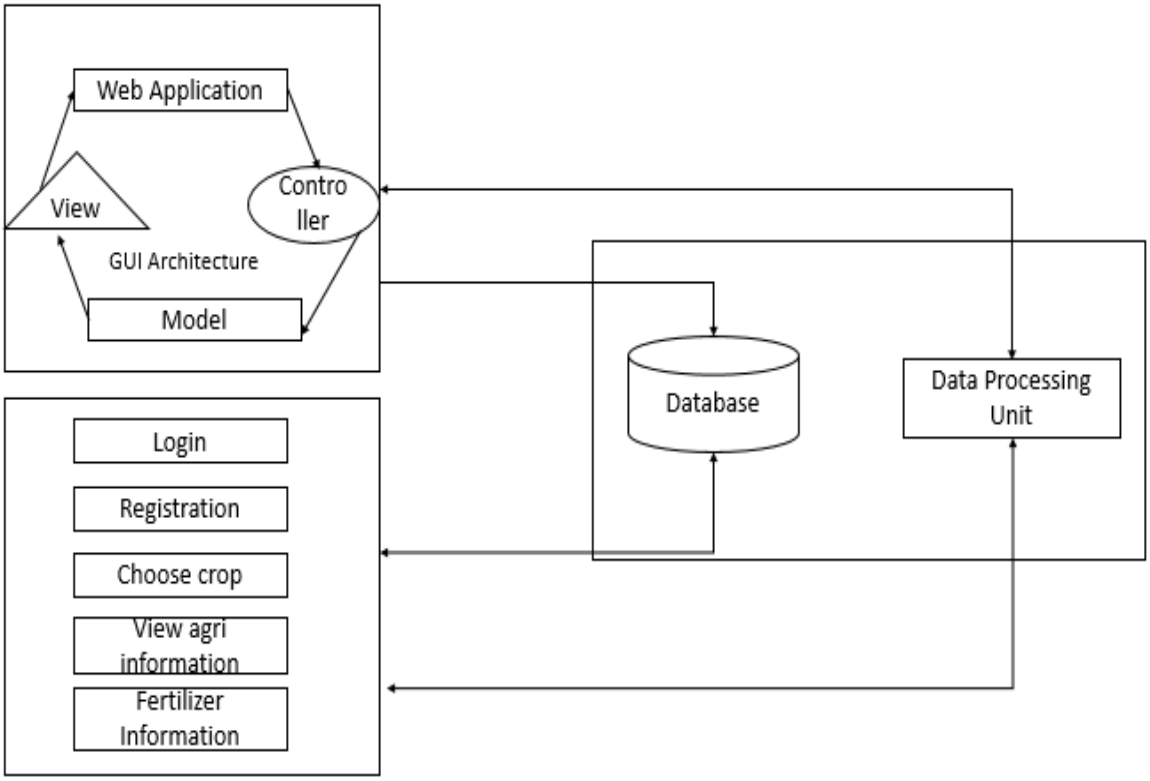

Fig. 1: System Architecture

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KNN uses information samples quite compared to whole details sets to reach fixes, saving each money and time. KNNs are believed to be quite simple mathematical versions to improve pre-existing information evaluation solutions. KNNs have 3 levels which are interconnected. The very first level covers enter neurons. All those neurons send out information onto the next level, which often directs the paper neurons on the 3rd level. Teaching a synthetic Nearest community calls for opting out of permitted designs for what you will find a number of related algorithms.

As shown in fig.1, the system is designed with customer and farmer interaction based scheme, everyone can get the service via the proposed application. Also, using KNN techniques, the result obtained is of better efficiency compared with existing system.

IV. EXPERIMENTAL RESULTS AND DISCUSSION

The experiments are performed using the APACHE 5.4.19 and MYSQL 5.4 version. The computations are performed using Toolbox that is readily available inside. In Fig. 2, here farmer can display their products for selling.

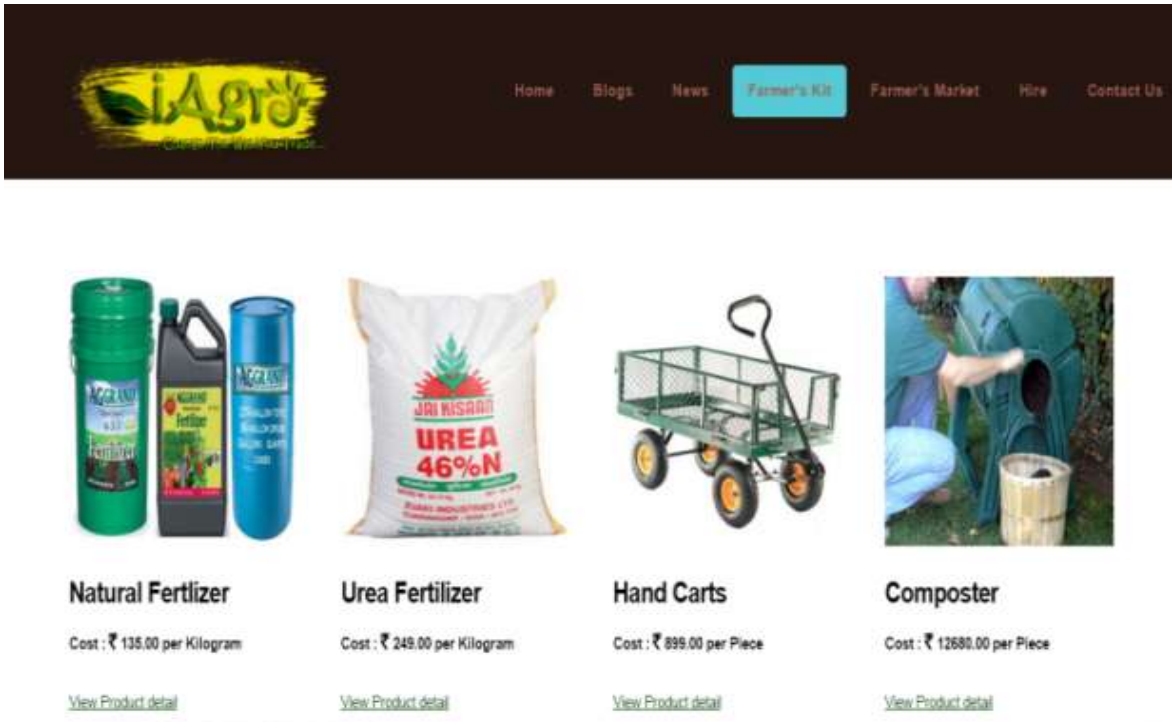

Fig. 2: Farmer's Kit

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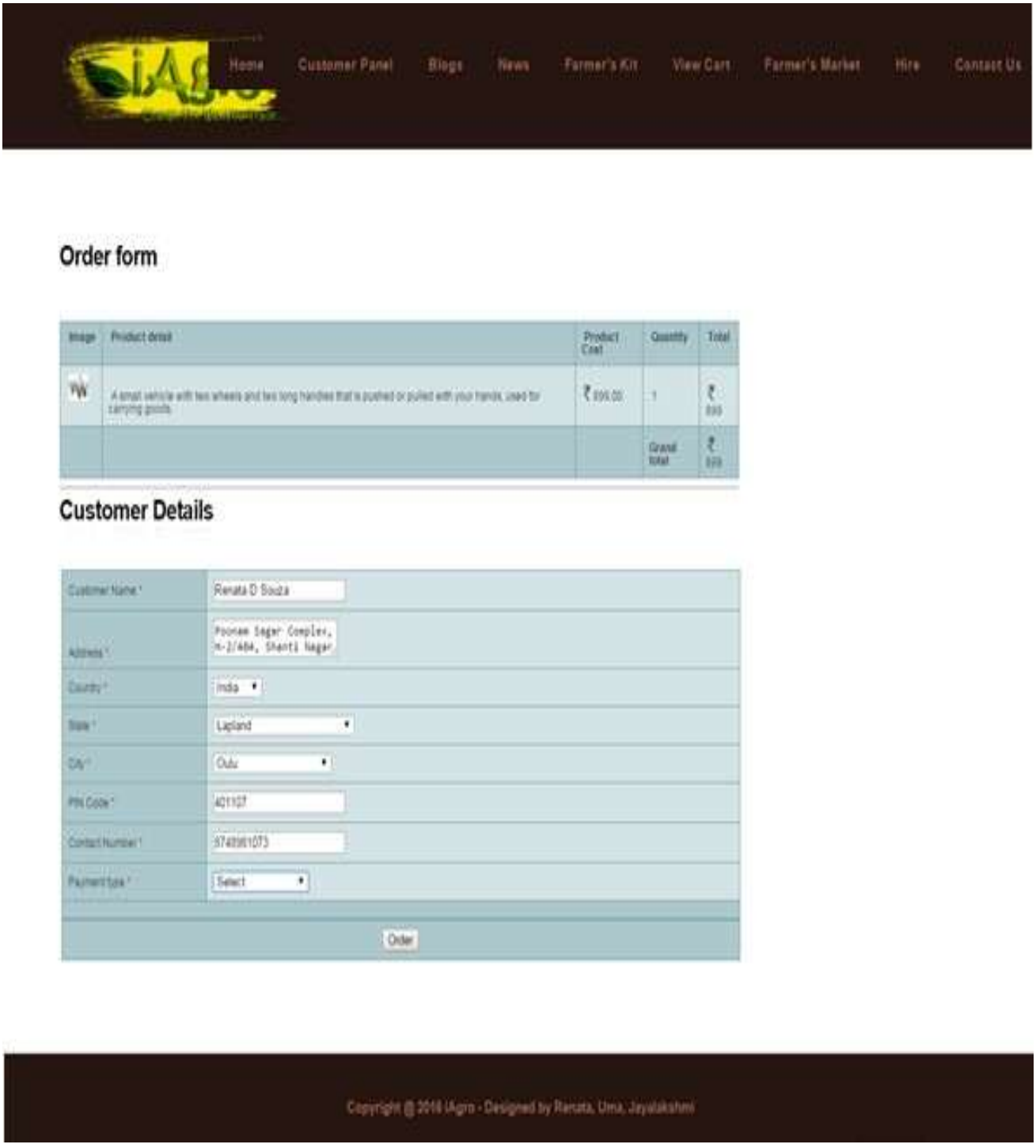

Fig. 3: Order form with Customer Details

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Fig. 4: Seller Information

In Fig.3, customer should give their details before purchasing the product from the seller. In Fig. 4, seller will also have the certain information before selling the product. In Fig. 5, finally, we can see the product tracking in live for better access. Then the data are then trained with a proposed scheme which is widely used for all techniques. Some database is kept for training and the rest are kept for testing the proposed schemes. Hence the result satisfies the expected output, achieved the response level on comparing with the existing model.

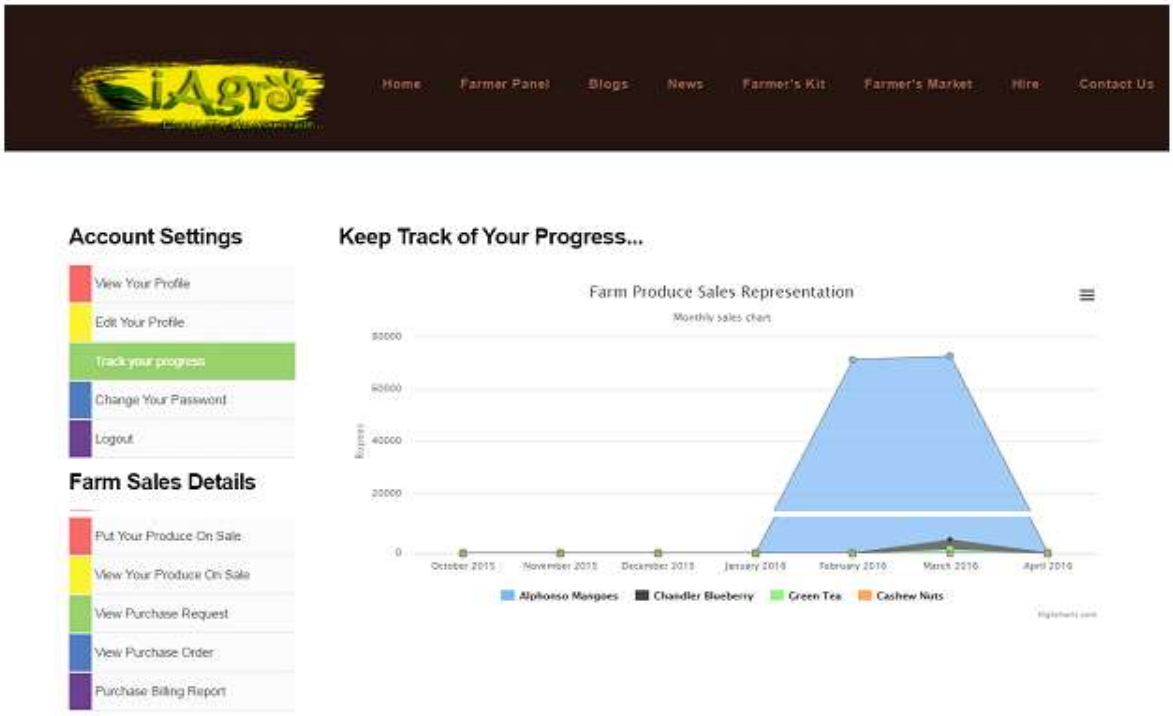

Fig. 5: Progress Tracking

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Table 1 shows the expected output on testing the data for the number of conditions. The precision of the KNN method was very good and achieved the overall scheme using these techniques. It was used to learn the whole application in faster communication.

Table 1: Expected Output

Serial No.	Condition To be Tested	Test Data	Expected Output	Remarks
1.	If field in the form is empty.	Value of form fields.	Alert the user to enter the fields and then proceed.	SUCCESSFUL
2.	If category is not selected.	category	Alert the user to select a category.	SUCCESSFUL
3.	If produce is not selected.	produce	Alert the user to select a produce.	SUCCESSFUL
4.	If variety contains values other than characters.	variety	Alert the user to enter only characters for variety.	SUCCESSFUL
5.	If image is not selected.	img	Alert the user to select an image.	SUCCESSFULS

V. CONCLUSION

Various apps are designed as well as utilized by farmers for the specific purpose of theirs. All of this apps have diverse use as per the functionalities of its. Quite a few apps are now being used for various sorts of features about the agriculture pursuits such as cropping info, pesticide sprays, fertilizer, seed, marketing of harvest, sprinkler system info, evaluation of harvest generation, water info as well as info with regards to the most effective methods of agriculture. We discovered that a lot of the apps are fixed. Rather than which powerful apps will probably be safer to work with. Additionally when just about all these kinds of listed functionalities are bundle to the single app as well as within the indigenous words on the farmer, subsequently it's simple to use it. The undertaking AgriBuzz is a man-made task as well as, consequently, there might be limitations and mistakes. The suggestions install might be changed. The names and terms might be changed. Nevertheless, the sincere effort of ours was giving the very best.

The sophisticated methods could be utilized within the potential future for computing the product quality on the service. In this paper, an efficient approach on farming has been suggested based on KNN Technique.

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