



AGRIGRAM - A DIGITAL PLATFORM FOR FARMERS

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Abstract—The economy of our country is dependent on agri- cultural success or failure. Farmer, the backbone of agriculture is in a serious and deadly condition as he is not getting precise agricultural information, thus leading to less crop yield. But now, in the era of Digital India, we can form a union of farmers through networking, and make the precision agriculture information react to the farmers through ICT.

Using the technology that has been recently developed, we can create a community that will develop the entirety of the country thereby improving the field of agriculture as well as the lives of farmers involved. We can use the concepts of crop prediction, fertilizer prediction, and the likes to improve the yield of farmers across the country.

Our platform provides e-commerce services to the farmers by using a bidding system to help farmers gain better profits. Also introduces a forum for any farmer to clear their own doubts. It can also be used to help their far away colleagues to solve their farming related problems.

All in all, Agrigram aims to bring the much needed innovation and technological advance to the agricultural field and thereby opening the world of agriculture to a even larger group of people.

Index Terms—crop prediction, fertilizer prediction, bidding system, farmers application, agrigram.

I. INTRODUCTION

”The development of the farmers in a country is the devel- opment of the country as a whole.”

Agriculture is one of the most important professions in the world. Without agriculture and farmers, the entire world would go hungry.

Yet, despite this, in INDIA, agriculture and farming is seen as a backward profession. Farmers in our country go hungry, even though they are the sole reason why majority of the people lives well.

One of the main reasons why farmers, remain poor is that they do not have a reliable way of selling their products, so as to get the maximum profits. They are forced to sell at the rate of the market which is near them. They do not have a swift way of sharing information. The only other source of such information would be popular apps like WhatsApp, Facebook and the like. To resolve this situation is why we have developed our application.

Using our software, we aim to not only enrich farmers with new technological advancements but also bring new people to the agricultural field.

II. PROBLEM STATEMENT

In India, even in the current times, agriculture has not benefited from any technological advancement. Farmer suicide is still at an all time high, and the majority of the farmers are in poverty. They are only able to sell their produce in the markets near to them, regardless of how expensive their products are in the other markets. Another issue would be that all farmers in the country are not united. They are not able to communicate with each other perfectly. As they are not connected, they are unable to share any information among each other.

As long as there was an efficient way to communicate useful information like new government schemes, agricultural practices and the newest technologies to the farmers all over the country, agriculture as a profession would grow.

III. OBJECTIVE OF THE PROPOSED SYSTEM

This proposal is aimed at the development of a efficient system and software that can be used not only for e-commerce applications but also community applications. This system proposes a agriculture-based forum to create a well-knit farmer community. It also aims to tackle the problem of farmer suicides across the country. To do this, the project will provide the farmer with the capability to personally their produce across the country.

IV. METHODOLOGIES

This proposed concept is not just a web-based system but also contains android development as well as machine learning. Thus, the basic features of the system are based on web-based technologies like database creation, manipulation and the like. This project contains 2 modules - an admin module and a user module. The system is developed using a top down style of thinking i.e. the platform is developed first and the various features are then added to it.

The machine learning part of the system uses the method- ology of random forest. According to this methodology, the algorithm builds decision trees on different samples and takes their majority vote for classification and average in case of regression. This methodology is chosen as it provides the best results out of the other methodologies like Naive Bayes, and Decision tree.

The user module is developed mainly using Android Studio. The connection to the database is provided using the Flask framework. The user module is used for best crop prediction and fertilizer prediction. The admin module is web-based. It is used for performing maintenance of the platform.

V. SYSTEM ARCHITECTURE

The proposed system Agrigram is a client-server application in which the clients can be either a android application or a website. The website is used to perform maintenance and the android application is to be used by the normal user. The normal user can be either a farmer with goods to sell, or a customer expecting to buy the goods.

The major components of architecture are : Browser, An- droid App, Database, Model, Admin, User. The database will contain various

tables like category, registered users, policies, news, products, etc. It is implemented using SQL.

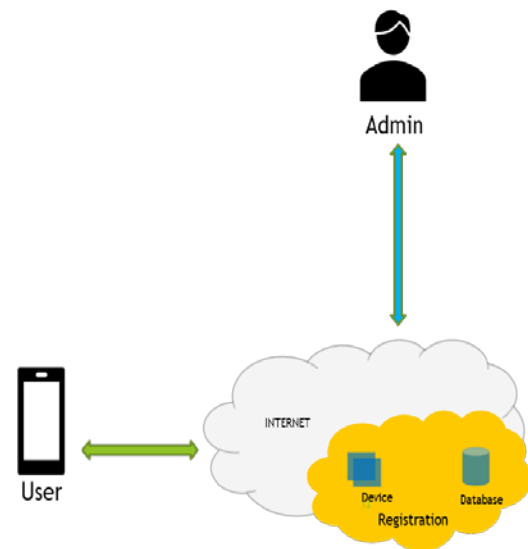


Fig. 1. System Architecture

VI. SYSTEM WORKING

Agrigram has two main counterparts - an admin and a user. The admin is responsible for setting up the categories, news, and the government schemes. He is also responsible for verifying users and trades. The User can have access to various features like a bidding system to sell or buy products, a community to clear their doubts and grievances, and a best crop prediction system to select the best crop for a particular soil.

A. Home Page

The user logs in to the home page using their email and password. There, the user can select the features he wishes to perform.

B. Crop Prediction

To perform crop prediction, the user must obtain soil values like pH, Nitrogen, Phosphorous, Potassium, and moisture. After inputting the values, the user just has to click the predict button, on which the system performs crop prediction using the random forest algorithm, and outputs the best crop that can be grown on that particular soil.

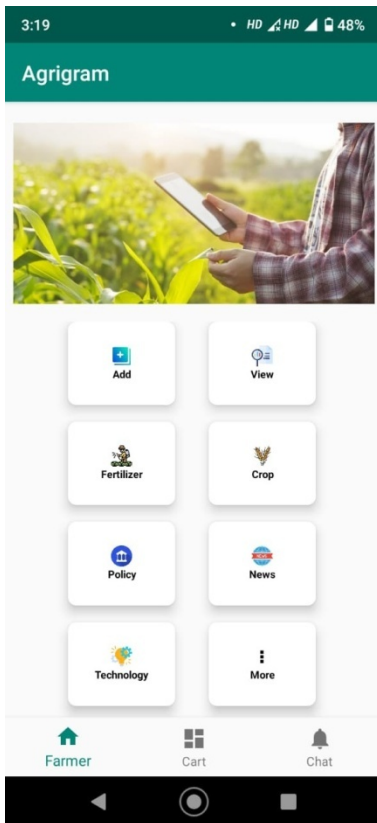


Fig. 2. Home Page

C. Fertilizer Prediction

To perform crop prediction, the user must obtain soil values like pH, Nitrogen, Phosphorous, Potassium, crop to be grown, and moisture. After inputting the values, the user just has to click the predict button, on which the system performs fertilizer prediction using the random forest algorithm, and outputs the best fertilizer that can be used for that particular soil and crop.

D. Bidding System for Product Sale

Using the bidding system sale model, the user can sell the product, and add products for sale.

1) Adding Products for sale: The user must add his products, and then set them for bidding. Upon setting them for bidding, other users can then be able to view the user's products and then place their own bids. After the completion of the time limit, if a particular user's bid is the highest, then the product will be sold to that user.

2) Setting Bids: A user can place bids on a product that are being sold by other users. After the time limit of the bid, if the user's bid is the highest, then the product will be sold to them. need a reliable agricultural information and alternate marketing channels. A high percentage of agriculture revenue is lost due to incorrect method of practicing and proper

marketing management. Hence our focus is on developing a platform to increase their knowledge about cultivation and sales, and to create a community that connects the farmers and a crop prediction system that will predict the best can be planted on that particular soil. Our project thus aim to maximize the productivity and increases the financial status of farmers.

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