

Improvement in Productivity and Income Using Farming Assistance

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Abstract: Nowadays mobile phones have become a promising tool in agriculture because the cost of the device is accessible and their computing power allows a variety of practical application to assist diverse farming tasks. According to the observations, Information and Communication Technologies (ICT) state that the cell phones play crucial role in farmers' lives. The traditional methods used by the farmers are very slow and undependable, especially in India. This results in considerable portion of crop getting affected by the bacterial attacks and lack of information, harming the land and degrading its productivity as well. On an average, damage to crops and agricultural production due to these reasons exceeds 40% of the total yearly production. Our key idea is to provide subsidy to the farmers who are Below Poverty Line (BPL) for buying pesticides and fertilizers by scanning their ration card. The presented paper also suggests various ways in which a farmer can utilize Mobile Computing (MC) on their handsets using application called "AGRO", to assist them for relatively better cultivation, yield and merchandise.

Keywords: Android Application, Below Poverty Line (BPL), Farming Assistance, Image Processing, Products (Pesticides), SQL Database

I. Introduction

Agriculture is the basic reason of production of food and raw material, which eventually is the reason of survival of the population. In India, agriculture is the primary occupation and most of the population is dependent on it. However, here is also need to review and revitalize the mechanism for updating the technology. In the upcoming years agriculture will see major changes. Unlike the earlier 'green revolution' which had a foundation of advanced pesticides and fertilizers, now the agriculture will be revolutionized with the help of technology. Every developing economy has agriculture sector as irreplaceable pillar and so does India. In India the agriculture sector contributes close to 20% of Gross Domestic Product (GDP). Either directly or indirectly, 60% of total population of India depends on agriculture. The majority of Indian farmers, which includes small-scale producers, are often unable to access the information and technological resources that could increase the yield and lead to better prices for their crops and products. The widely spread network of mobile phones could be the game changer in this problem. It will put agriculture field at its peak. The main purpose of this project is to develop a mobile phone-based solution that helps in farm management, which will lead to improvement in agricultural yield and helps in maintenance of the farms.

II. Related Work

The main aim of modern farming technique using android application is to enhance transparency in the agriculture commodity marketplace by providing market price information, facilitating collective buying of inputs and collective selling of product. Farmers most depend on weather forecast to decide as what work to do today and tomorrow.

Earlier approaches which focused on how illiterate n Below Poverty Line farmers would get help are referred as follows: -

1. We referred paper "KisanVikas" in which its main focus was on information and communication technology (ICT) and e-governance application that will help- farmers. The objective of the application was to provide government helplines, weather forecasts, news, mandi (market) prices of crops to the farmer. There is also an in-built database in which the farmer can keep a track of his inventories, harvests, seeds and fertilizer purchases, vehicles and equipment, etc.
2. The second paper referred is "Maha Farm" which also focuses on same agriculture activities such a crop data, market prices, weather and new update. The only difference is that it updates news by RSS feed.
3. The third paper referred is "Android based solution for Indian agriculture management design paper". In this paper the application developed helps farmer to keep the track record of what's happening in farm and what needs to be done next. Its major focus is on language that is it provides different language for interaction between farmers and application. It also allows users to plan activities, organize staff, monitor

Agri - inputs and agricultural machineries use, undertake economic and financial analysis of activities i.e. allows farmers to record cropping, machinery procedures and access this information.

4. The fourth paper referred as “Krishi Ville”. It takes care of the updates of the different agricultural commodities, weather forecast updates, agricultural news updates. The application has been designed taking Indian farming in consideration.

III. Research Challenges In Agricultural Domain

Indian farmers are troubled by several problems. They can be natural problems or can be a problem occurred by human being. The major problem of Indian agriculture is that they are not highly literate which causes big issue in farmers for understanding different and new forms of farming technique. Pollution and environmental issues are also the different forms faced by Indian agriculture.

1. Indian farmers never use proper management for crop cultivation. A further problem is a lack of coordination along the agricultural value chain from farm inputs to farm processing, which increases the cost of production and lower down revenue for farmers.[1]
2. Farmers also rely on weather forecast as what to do now and what not to which causes them to wait for cultivation and farming.[2]
3. The farmers do not get full benefits of government services, so advances in Information Communication Technologies (ICT) to foster e-governance is important as the farmers will get the full benefits of services provided by the government.[3]

IV. Proposed Methodology

1. In the proposed system, a farming assistance application based on android operating system is developed which is platform independent.
2. Here, the farmers will first register and then use this application.
3. Farmers can access different functions such as information of the weather and can get details of different crops.
4. Farming tools on rent will also be available through the application.
5. Farmers will upload the image of ration card and the admin will verify whether the respective farmer is BPL or not [Figure 1] [Figure 10.1] [Figure 10.2].
6. The government will provide 50 % subsidy for BPL farmers while buying pesticides [Figure 4].

The flow of the proposed framework is as follows:

1. The application will help farmers who are Below Poverty Line, by scanning ration card color through which government will provide subsidies to them. For this purpose, Registration will be done with help of android registration GUI page [Figure 1].
2. After registration, the farmer can access their account with the help of Login page [Figure 2].
3. They will also get an expert advice or a message by just clicking or putting up their query on application [Figure 7].
4. They will be updated with the weather information on daily basis.
5. The farmers can ask for the farming tools by updating a query in the application.
6. After updating the query, the customers (farmers) will revert back based on his/her requirement [Figure 7].

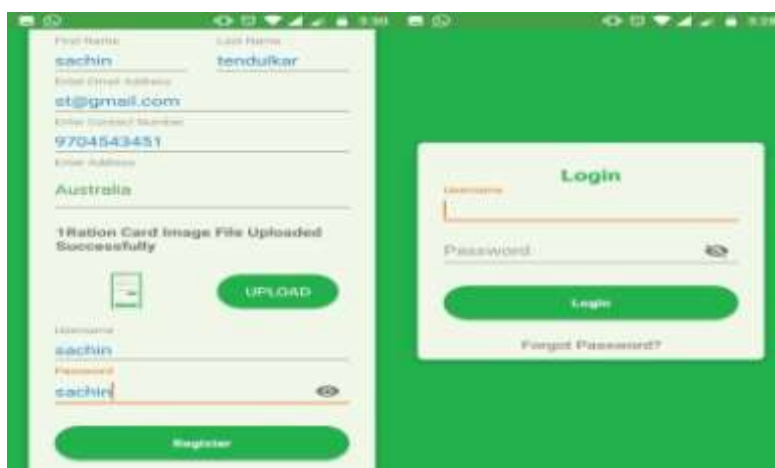


Fig. 1.Registration page for User

Fig. 2.Login page for User



Fig. 3.Home screen with different options

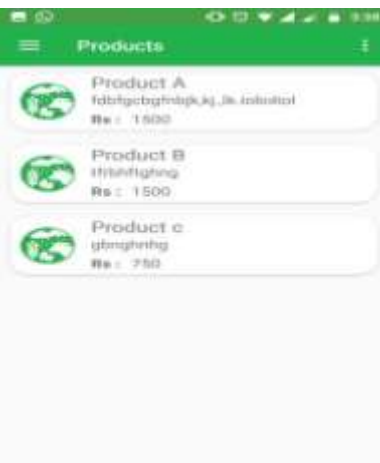


Fig. 4.List of various products(Pesticides)

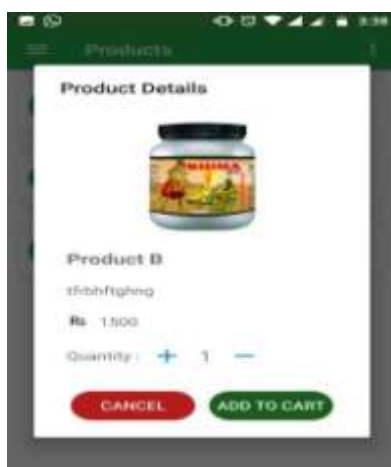


Fig. 5.Details of the product



Fig. 6.Products added to the cart



Fig. 7.Queries and their solutions

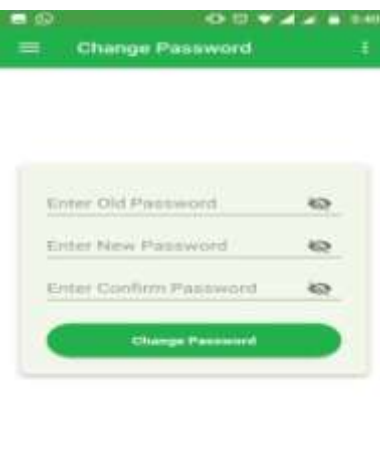


Fig. 8. Password reset page

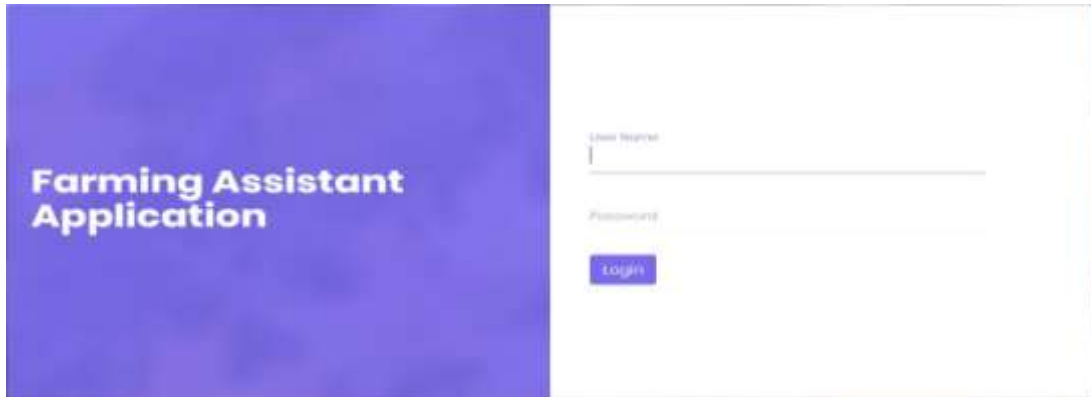


Fig. 9. Login page for Admin to access the database



Fig. 10.1. Webpage displaying categorialdatabases



Fig. 10.2. Data added by the user is stored in User information which is used for verifying the user



Fig. 11. List of products(Pesticides) the user can buy



Fig. 12.1.



Fig. 12.2

Fig. 12.1. and Fig. 12.2. Details of the products(Pesticides) added by the admin

V. Conclusion

Different applications are developed and used by farmers for their specific tasks. All these applications have different functionalities and need to be used separately. Our application is a one stop solution to all that agricultural requirements and needs. Through this application, location specific information is also provided. It provides a highly authentic and reliable database on agriculture. This location specific data is accurate and is acquired from reliable sources. Existence farming applications are static in nature; our application is dynamic and will prove to be better for use. All the required information and functionalities are bundled in single application along with support of native language for the farmers, it becomes easy for utilisation.

References

- [1]. Singhal M., Verma K, Shukla A., "Android Based Solution Indian Agriculture", IEEE 5th International Conference Advance Network and Telecommunication System (ANTS), DEC-2011
- [2]. Santosh G.Karkhile, SudarshanG.Ghuge, "A Modern Farming Techniques using Android Applications", IJRSET, OCT-2015
- [3]. ArpitNarechania, "KisanVikas – Android Based ICT Solution in Indian Agriculture to Assist Farmers "
- [4]. ManavSinghal, KshitijVerma, Anupam Shukla, "Krishi Ville – Android based Solution for Indian Agriculture", IEEE Transactions, 2014.
- [5]. Ghosh, S Garg, A.B; Sarcar, S.; Sridhar, P.S.V.S. "An interface for Indian farmer", IEEE Students Technology Symposium (TechSym), March-2014, pp-259-63.
- [6]. Aniketbhave,Rahuljoshi, Ryan Fernandez, "Maha Farm-an android based solution for remunerative agriculture",APRIL-2014
- [7]. SupornPongnumkul, PimwadeeChaovalit and NavapornSurasvadi – "Applications of smartphone-based sensors in agriculture : A Systematic Review Of Research ", JULY 2015
- [8]. SumithaThankachan,Dr. S.Kirubakaran , "E-Agriculture Information Management System" ,IJCSMC ,MAY 2014