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# Review on: Design and Development of Mobile App for Farmers

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**ABSTRACT**

Today mobile devices are used commonly by everyone, including the farmers and countryside people. Agriculture is the support of Indian economy so information sharing to the knowledge intensive agriculture area is upgraded by mobile-enabled information services and speedy growth of mobile telephony.Mobile application provides varied information services to farmers which are helpful for management, controlling and monitoring of the farm. Mobile app is very helpful for farmers to increase their farming to yield more profit. This paper explores how Mobile Apps of agricultural services have impacted the farmers in their farming activities and which more innovative agriculture services will provide through Mobile App.

***KEYWORDS:*** *Mobile app; Agriculture; information Management; Farmer*

## I. INTRODUCTION

Agriculture is the main occupation of the bigger part of Indian population. 60-70 % of Indian population is totally depends on agriculture sector for their living. The main difficult task for farmers is information access and management for the quantity of data and the complication of processes in precision farming. The data for farming like crop life cycle detail, seeds, crop selection, crop processes weather, pesticides, fertilizer etc. are accessible from a lot of different sources like newspaper, printed media, audio and, mobile, TV, internet, visual aids etc. but the structures and formats of data are different. So it's extremely hard for farmer to get exact information and to know variety of information which have distributed from diverse sources. Sometime several manual steps are essential to handing out data for translating data from one format to another format.

The succession in the crop growing production directly increases the Indian economy and vice-versa is also correct. To modernize farmer's life there is necessary to give finest technological solutions to the farmers. A lot of techniques and methods are being developed in order to assist the agricultural routine activities. Mobile apps in the field of farming can be the most excellent option to boost farming production in country. The new inventions in technology in agriculture area are not easily getting to the farmers due to lack of knowledge. They don't know the source from where they can get valuable information. Hence, no of farmers are being unsuccessful to gain probable production rate. Therefore it is necessary to develop a user friendly system from where the essential information is accessible by farmers. Many new opportunities are produced by smart phone technology for farmers. Farmers are easily capable to get agriculture mobile application on their smart phone to obtain various facilities which couldn't existing on their ha

nds before. In the days of economic crisis, agriculture is becoming very important. Numerous mobile applications have been developed for gaining of information in the field of agriculture like livestock management, Agro Mobile, Krishiville etc. This paper deals with the study of existing android based applications which are helpful for farmers and design and development of best app for agriculture which include various diverse services for farmers.

## II. LITERATURE REVIEW

There are a variety of Mobile app developments in the marketplace, designed to make farming easy. Some mobile applications have designed to specifically provide information services to farmers. In this work various research paper and Mobile App have reviewed related to agriculture sector.

Santosh G. Karkhile, Sudarshan G. Ghuge "A Modern Farming Techniques using Android Application" 2015[1]-In this paper researcher given a entire idea about develop a mobile phone based solution that helps in farm management, leads to agricultural yield improvement and helps in farm maintenance. Researcher explain that traditional farming

tolerated unexpected environment where as, Modern farming provide expected environment by weather forecasting. Traditional farming requires large amount of labor and different activities for conducting farming. Alternatively Modern farming does not require huge amount of labor as the mobile, machines and new technology take care of the whole thing. This mobile application provides real time weather information, news and market prices at diverse locations and all information is provided in local languages. So, all the outcomes of researcher application are aid farmer to improve their agriculture to yield more earnings. author expand the System Architecture for the farmer app which include different operations like registration of farmers Weather forecasting, News and feeds, Multiple language support, Market trading.

Suporn Pongnumkul, Pimwadee Chaovalit, Navaporn Surasvadi "Applications of Smartphone-Based Sensors in Agriculture: A Systematic Review of Research" 2015[2] This research represents reviews on Smartphone applications that use Smartphone built-in sensors to give agricultural solutions. According to agriculture function applications are categorized. Researcher literature review describe different types of agriculture application like farming applications, farm management applications, information system applications and extension service applications. Various functionality in farming make simple using this application like Disease Detection and Diagnosis, Soil Study ,Crop Water Needs Estimation, HR Management, Information System Applications , Extension Service Applications This review paper focus that GPS and cameras are the most trendy sensors used in the smart phone application for farming.

Alcardo A. Barakabitze , Edvin J. Kitindi "New Technologies for Disseminating and Communicating Agriculture Knowledge and Information: Challenges for Agricultural Research Institutes in Tanzania"2015[3]-In this paper researcher explores how a extensive range of Information and Communication Technologies (ICTs) accessible in Agricultural Research Institutes (ARIs)and how farming researchers make effective use of a wide range of ICT tools allied to ,crop variety, land use, irrigation, soil nutrients requirement, weather report, pest and disease control, awareness about crops, pollution control, and new farming techniques.

K. Lakshmisudha and SwathiHegde "Smart Precision based Agriculture using Sensors" 2016[4]

Author represents wireless sensor networks which can help bring about a great revolution in automating agriculture field. This research project makes plant monitoring process easy as well as reduced human effort in farming day to day activity. User can produce customized environment to the plants. This application provides most favorable growth conditions using different sensors.

Hemlata Channe and Sukhesh Kothari "Multidisciplinary Model for Smart Agriculture using Internet-of-Things (IoT), Sensors, Cloud- Computing, Mobile-Computing & Big-Data Analysis"[5]-In this research the proposed architecture of multidisciplinary model is shown which consists of the five modules: 1) Sensor Kit Module. 2) Mobile App Module. 3) Agro Cloud Module. 4) Big-Data Mining, Analysis and Knowledge Building Engine Module. 5) Government &Agro Banks UI In second module researcher explores uses of Mobile applications for farmers. researcher focus on main three part a. UI for farmer b. UI for agro marketing agency c. UI for agro vendors including fertilizer. By this module all the agriculture related entities are linked together, this model also make possible supply of harvested crops to the agro marketing agencies and different agriculture products and services from agro venders can get by farmers on this app. This model also facilitates estimates of total production per crop in region wise and state wise, total fertilizer requirements. This will be helpful to keep the cost of agricultural products in control. Through notifications farmers also informed about current schemes for agriculture.

Shailaja Patil and Anjali R. Kokate "Precision Agriculture: A Survey" 2015[6]-In this paper researcher explores how different mobile phone application and precision agriculture services have impacted the farmer's life in their agricultural activities. Android apps offer proficient functionality to be grown-up with technology. In the ground like precision agriculture farmers get extra benefits from the mobile apps which are developed for the agriculture monitoring purpose and vital information exchange. Mobile apps that are use for agriculture monitoring are of special types which provide information like weather information, market rate and availability, government scheme details etc. Author provides following some apps details used for monitoring and data information exchange purpose. 1) Mkisan application: This android app is designed and developed by CDAC Pune. This app is useful for assistances to farmers. 2) Shetkarimasik android app "ShetkariMasik" is extremely popular monthly magazine in the farming sector since 1965.Department of Agriculture in Maharashtra published Shetkarimasik mobile app. The important feature of this app is after registration process without use of internet user can upload information on the portal 3) Farm -o-Pedia this app has been developed by CDAC, Mumbai. Multiple language support facility is provided by this app. This Android application is intended for farmers or anybody linked to agriculture in rural Gujarat. This application is available in English and Gujarati language. The functions of the app are: Obtaining crop-wise information, Monitoring suitable crops according to soil and season, monitor weather and managing cattle in the herd etc. 4) Markets near me -This mobile app is use to get the market price of crops in the markets in the area near of 50 km of user location. It captures the location of mobile user through sensor and displays the crop's market price of markets nearer to the user.

Shubham Sharma, Viraj Patodkar, Sujit Simant, Chirag Shah Prof. Sachin Godse "E-Agro Android Application"(Integrated Farming Management Systems for sustainable development of farmers) 2015[7]-In this paper author explain software application which is essentially for sustainable growth of farmers. A lot of time farmer is confused to get decision regarding selection of pesticide, fertilizer and specific time to do particular farming actions. So to minimize such type of problem this application is very useful for farmers. Fertilizer schedule is registered for various crops. Based on sowing date of crop, farmers get reminders about use of fertilizer as per plan. Additional advice are also given based on soil type, climatic condition etc. This system merges modern Internet technique and mobile communication systems with GPS for proficient and smooth farming.

Shitala Prasad, Sateesh K. Peddoju and Debashis Ghosh "Agro Mobile: A Cloud-Based Framework for Agriculturists on Mobile Platform" 2013[8]-This paper explore different ways in which a farmer be able to use MCC(Mobile Cloud Computing) on their handsets by application called Agro Mobile, This mobile application is very useful to assist farmers for relatively superior cultivation and marketing. The major consideration of this work is paying attention on crop image analysis. Image processing techniques requires huge amount of computation power as well as large memory to process so that purpose a mobile devices fails. Hence, this framework uses the concept of MCC these authors consider that, puts cloud into a farmer's pocket. For this research an Android based mobile devices are used.

M. V. Bueno- Delgado , J. M. Molina-Martínez , R. Correoso-Campillo , P. Pavón-Mariño "Ecofert: An Android application for the optimization of fertilizer cost in fertigation "2015[9]-In this paper researcher focus on efficient management of fertilizers is reflected into a saving of money and time. In this work Ecofert is presented as easy and powerful software application developed for Android O.S. that calculates the most excellent combination of fertilizers to get the desired nutrient solution for different crops. In this application current price of fertilizers in the market are also considered. The most important novelties of Ecofert are, first thing is it solves the fertilization mixture by modeling this as a Linear Programming problem, and using specific mathematical libraries to resolve it. On the other hand, Ecofert works with a list of marketable fertilizers hosted in a Data Base in the Cloud, where the composition and cost is updated daily. In addition Ecofert shows a low down computational cost, even for huge number of fertilizers (>20). Ecofert is simple application so easily execute in mobile devices, giving farmers and crop growing technicians a powerful tool to support for agricultural tasks.

Sotiris Karetsos, Constantina Costopoulou, Alexander Sideridis "Developing a smart phone app for m-government in agriculture"2014[10]-In this paper author take review on smart phone use and capabilities in farming. Based on different agriculture case study author propose mobile government app for the Android operating system. The mobile government app is based on a earlier developed electronic government system for farmers. Such apps look forward to be a promising solution for farmers enabling them to access government information and transact with public agencies at their convenience and at a location of their choice.

Iffco Kisan App[11] :-Iffco Kisan is farming app for Kisan. It utilizes less memory and gives easy interface. This android mobile application gives diverse information to farmers like latest mandi prices, latest agriculture advice, farming tips to make farming easy. It moreover provides agriculture alerts to farmers in different Indian languages. The farmers can effortlessly take help from crop growing experts using this app.

Agri Media Video App [12]:-In video category Agri Media Video App is trendy mobile apps for farmers. It provide online market place ,farming retail, fulfill farming services on online platform .Out of 5 total 4.8 rating has get by this mobile app. Using this app farmers easily communicate with agriculture expert to solve their problems. Farmers can view diverse agriculture video through it.

Farm Bee - RML Farmer [13]:- Farm Bee is also one of the agricultural app used for various purposes. It gives productive farming content and information within every stage of the crop life cycle. A farmer can select different crop varieties, markets using this app. It also provides mandi price and weather forecast based on a user location. In terms of memory utilization it is small in size. It gives multiple language support facility.

## III. GAP ANALYSIS

The researcher has reviewed various articles which are related to agriculture and development of mobile applications for farmers. Researcher also found that there are many mobile applications made for farmers in different countries related to diverse services but to fulfill ruler farmers demand researcher will design and develop user friendly mobile application which provides multiple features in one app like diverse information services as well as interaction platform for farmers and agriculture people along with information about organic farming. This will more beneficial to farmers to get all imperative information services and platform for interaction in one app. This mobile app will fulfill all the agricultural needs of the farmer in one touch on any time at any place.

## IV. CONCLUSION

In the rapidly expanding digital ecosystem, the mobile apps has surfaced and attained enormous importance. For the advancement of the agriculture sector, mobile apps are introduced – to help the farming community. India is the country which is mostly depended on agriculture. There are various new technology develop for agriculture. Indian government also provides extra facilities for the farmers to improve their productivity. All the imperative information and plans regarding farming is not timely reach to the farmers due to unfair management. The majority of the farmers do not know about uses of new technologies in agriculture. Thus, in order to bridge this gap between farmers and new technology as well as government aids to improve agricultural growth researcher will develop a novel solution. This mobile app will define the necessary procedure and model to make farmers aware about new diverse knowledge about agriculture and also help them to improve agriculture in our nation.

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