



Dissemination of Modern Agriculture: The New Era of Farming Techniques

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Abstract— Agricultural systems in India face accumulating economic, ecological and societal challenges, raising concerns about their resilience to shocks and stresses. These resilience issues need to be addressed with a focus on changing the old traditional method with new modern technological method. It is said that modern problems require modern solutions, so be it. We define resilience of a farming system as its ability to ensure the provision of the system functions in the face of increasingly complex and accumulating economic, social, environmental and institutional problems, through "Improvise, Adapt, Overcome". The methodology deploys a mixed-methods approach: quantitative methods, such as statistics, predictions and modelling, which are used to identify underlying patterns, causal explanations and likely contributing factors; while qualitative methods, such as interviews, online videos, participatory approaches and workshops, access experiential and contextual knowledge and provide more nuanced insights.

Keywords— android application, farming tutorial, agriculture, farmers suicide, farming techniques, farming tools, agriculture news, crops information, farming application, resilience, smart farming

I. INTRODUCTION

Agriculture is the backbone of the Indian economy. The geographical position of our country has been very congenial to agricultural activities. The physical factors existing in India, that is, her climate, her soil and her relief have become very helpful for the cultivation of so many crops here. So, from long past the Indians have taken agriculture as their basic means of livelihood. The present state of Indian agriculture has come through gradual changes and it is hard to believe what the position of our agriculture had been before independence. From the Battle of Plassey in 1757 to the attainment of independence in 1947, that is, over a period of 190 years there was hardly any 1 change in farm technology in our country. Throughout the period bullock had remained the main source of power. Even the wooden plough did not change in any substantial manner. For most of the farmers agriculture was a means of subsistence. Nearly 70% of the total population derived their livelihood from agriculture itself. The villagers were self-sufficient to barter their products with each other. Grain was the standard of value. There was natural economy and money economy was extremely rare. But when money penetrated into the market through the process of commercialization of agriculture in the 22 middle of the 19th century, there was a rapid change in the structure of the rural

economy. The money economy weakened the older frame of the rural India. The peasants were compelled to bring their products in the sphere of market and to sell them because money had become indispensable to them. In this way the Indian poor peasants had been forced to sell their products rather than for their own consumption. Prof. Godgil had rightly pointed out, "The first impetus towards this tendency of commercialization was noticed when money economy was introduced into the villages in the shape of cash assessment".

II. MOTIVATION

We have selected this topic for our major project because we are living in a country where agriculture employees 50% of the Indian work force and contributes 17-18% to country's GDP. India ranks first in the world with highest net cropped area followed by US and China. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. India has land and climate, the only things to be focused are technology and literacy. These two factors will motivate the farmers to work and gain more profit & this all will prevent suicides.



III. LITERATURE REVIEW

A. Research Gap

By the term "growth" in agriculture we shall mean the trend growth rate which will take account of the physical quantity of the dependent variable concerned of each and every year. In the field of agricultural commodities encountering so many uncertainties the trend growth rate is much more important than the point growth rate as defined by late Professor Sir Roy Harrod¹⁴. The Harrodian growth rate is very much sensitive to the values of the dependent variable at the initial and the final years. Hence, we have not generally considered the point growth rates. However, in the context of West Bengal we have generally made use of the point rate of growth which has been computed not on the basis of the one year values of the dependent variables at both the end points but on the basis of the three-year average values of the dependent variables so as to eliminate some sort of bias that may crop up in the growth rates concerned. It is worthwhile to mention here that the growth rates of Indian agriculture have been computed and studied by various scholars, authors and experts.

B. Problem Statement and Objective

Every year we see that the farmers are committing suicide due to the bad crop (various reasons), or bad rates for the crops and loan sharks. Our farmers are well too behind in using technologies and advanced methodologies to grow the crops. There are several reasons for why farmers are not using the existing applications. This stipulates a tremendous scope for the application developers. The task is to identify proper requirements, make application user friendly and relevant. The farmers can use this application from anywhere, all using their mobile phones. This application will enable them to utilize the power of technology in their farming as it contains modules like rainfall prediction, temperature identifier, crop condition suggestions, current agriculture affairs, buying and selling, Hiring mechanizations and expert chat. The main objective of the research and project is to prevent suicide of farmers and encourage their profession.



C. Scope

With a 16% contribution to the gross domestic product (GDP), agriculture still provides livelihood support to about two-thirds of country's population. The sector provides employment to 58% of country's work force and is the single largest private sector occupation. Agriculture accounts for about 15% of the total export earnings and provides raw material to a large number of Industries (textiles, silk, sugar, rice, flour mills, milk products). Rural areas are the biggest markets for low-priced and middle-priced consumer goods, including consumer durables and rural domestic savings are an important source of resource mobilization. The agriculture sector acts as a wall in maintaining food security and in the process, national security as well. The allied sectors like horticulture, animal husbandry, dairy and fisheries, have an important role in improving the overall economic conditions and health and nutrition of the rural masses. To maintain the ecological balance, there is need for sustainable and balanced development of agriculture and allied sectors.

Agriculture's eyes and minds are soothed by dynamic changes from brown (bare soil) to green (growing crop) to golden (mature crop) and bumper harvests. Plateauing of agricultural productivity in irrigated areas and in some cases the declining trend warrants attention of scientists. Agriculture helps to elevate the community consisting of different castes and communities to a better social, cultural, political and economic life. Agriculture maintains a biological equilibrium in nature. Satisfactory agricultural production brings peace, prosperity, harmony, health and wealth to individuals of a nation by driving away distrust, discord and anarchy.



IV. RELATED WORK

Today the mobile phones are used globally. As the popularity of smart phone is increasing day by day and its price is decreasing. Besides, android is the mobile operating system used in most of the smart phones, many of its applications are freely available. The Government and tech companies are striving to develop many mobile applications for farmers in India to provide assistance through mobile application in different field of agriculture and help them in different ways. While researching we came across an application names Kisan Abhimaan, which was released on 24 June 2016 by MyVishwas Corporation. The motive of this application was to connect farmers, wholesalers, retailers and customers on a common digital platform and buy or sell vegetables, fruits, cereals, spices, flowers etc. posted by them. This application is not capable of predicting rainfall, temperature, crop production, showing current affairs about farming & policies, all crop details, latest farming tutorial and techniques. All this will help farmers to farm easily and will uplift their profession.

V. METHODOLOGY

We propose an android based mobile application. The application has been designed taking India into consideration. In this research the android based smart mobile devices will be used for testing. The experimental setup uses android development tools.



A. Software Requirements

To narrate physical and logical features of each interface between hardware components and software product of the system. This comprise of supported device types, communication protocols and hardware to be used, control interactions between the software and the nature of the data.

1. Platform: Android Studio
2. Technique: Java & Extensible Markup Language
3. Backend: Firebase

B. Hardware Requirements

Narrate the connections between system and other specific software components, operating system, comprising databases, libraries, tools and integrated commercial components. Recognize data items and messages coming into system and going to narrate the purpose of each. To narrate the services required and the nature of communications.

1. RAM: 4 GB RAM minimum, 8 GB RAM recommended.
2. Processor Speed: 64-bit (x64) CPU
3. Disk Space: 2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
4. Screen Resolution: minimum 1280 x 800 resolution
5. Operating System: Microsoft® Windows® 7/8/10
6. Interface: Android Mobile

C. Process of development follows functions:

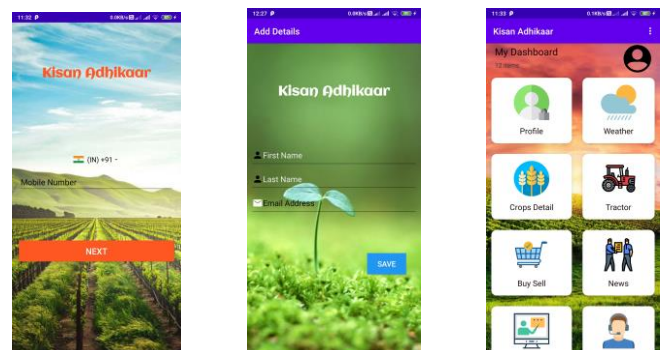
1. **Login and Registration:** At login page, user have to select the country code, enter their mobile number and hit next. Hitting next button will generate an OTP using Firebase authentication, this OTP will be sent to user's mobile phone in the form of text message. The OTP will get auto verified by the application and the user will be redirected to the add details or can say registration page. Registration form will comprise of fields like farmers first name, last name and email address. Saving this will redirect the user to his Dashboard and the data entered by him will get save in Firebase Database with unique identification number. The user can view and edit his/her details anytime from the Profile section.
2. **Weather forecasting:** The application accesses the location of farmer to provide daily weather forecast report of that location. This will provide weather report of particular location, report of previous day and predicts future weather report.
3. **Rainfall Prediction:** Average Monthly Prediction on basis on gathered data of previous years.
4. **Temperature:** Average Temperature of today and current week.
5. **Information about Crops:** Agriculture is all regarding cultivation of Crops, Animals etc. Agricultural education says that growth of production is reliant on climate,

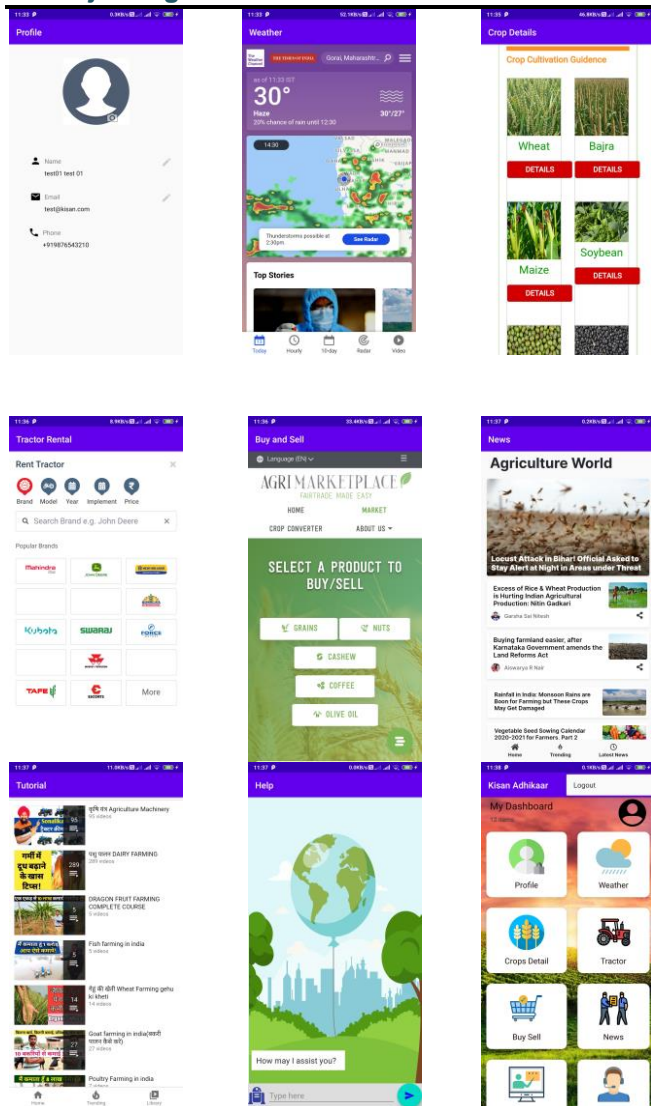
medicines and fertilizers and soil. And need proper guidance to grow production of food. Providing all detailed information about crops, fertilizers and animals etc.

6. **News and feeds:** In this application will provide daily news updates of crops. According to location of farmer daily news will be provided on mobile phone. It will show Current News of Agriculture, Latest Policies etc.
7. **Buy/Sell Products:** No Middlemen. Farmers can directly buy items from shops or whole sellers and can also sell their cultivated items. This will make a reduce in buy cost and sales profit will be more. This will also connect all the farmers with retailer and to other farmers also.
8. **Hiring Farming Tools and Technology:** Industry of Farming tools and mechanizations will grow rapidly. Different tools which help the farmers for growing their production will be at nominal amount & will get at required location.
9. **Tutorial:** Many farmers are illiterate, because of which they face problem while farming and many a times there is no one to guide or help them. These video tutorials will help them to farm and to also learn new techniques.
10. **Help:** Chat between the farmers or farmers and experts to reduce failure in crop. Farmers can directly get an instant expert advice on the Help chat section.

VI. RESULT

Today smart phones are not used by many farmers. This application will motivate them to use the smart phones. The traditional methods used by farmers are very slow and undependable. This smart phone application will effectively help farmers to learn new techniques, sell their products in market and earn remarkable profit. This will in turn reduce the stress of the farmers and will prevent suicides. The screenshots of the working application are as below:





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