

SMART KRISHI- A Proposed System for Farmers

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Abstract— The Farmer's condition today is very poor in India. There are many reasons for this condition. One being the various diseases in the crops and other being the untimely changes in the weather. Changes in the weather are natural and cannot be prevented but its impact can be definitely reduced down. The proposed system SMART KRISHI offers a solution for this problem. SMART KRISHI offers location based services to the farmers. It includes weather forecasts, search for nearby farming related services, services for hiring laborers and farming tool and much more. The system aims to reduce farmer's work load, ease his daily work and thus ultimately increase the crop produce. Firebase is used for authentication and real-time database which provides the facility of backend services. For getting nearby location, the system uses standard zip-code database which provide latitude or longitude of zip-code and other information. Further, the system is using web scraping technique to get data from government website to our app.

Keywords: Farmer, Weather, Location, Government Services, Android

1.INTRODUCTION

India has been an agrarian economy, with the sector now contributing 17 percent to the national GDP [6]. Even today, over 58 percent of households depend on it for their livelihood. But drought, poor infrastructure, and lack of dependable labor have resulted in poor yield year after year. One of the biggest challenges is farming, especially for small farmers who don't get any updates regarding the climatic conditions or if the crop they are thinking to harvest will be suitable according to the climatic conditions.

Due to evolution in technology, the rapid growth and development of the world are faster and also technology has provided comfort to human being this has made life simpler.

Over the past few years, the use of mobile phones has been progressive and there has been a crucial need for an application that terms as a whole farming system. [5]

So in order to fulfil this gap and provide facilities to farmer even if they are located at remote locations but they can connect to the market-place and contractors through a portal.

2.PROJECT PURPOSE

The main aim of the paper is the development of a web application which will be a useful for the farmers. The app will be used by the farmers on day to day basis.

System requirements include:

- 1) Android Application with latest version.
- 2) Home page with a login or registration option.
- 3) Farmer's profile with all his information
- 4) Laborer's Profile with all his information
- 5) Daily Weather updates
- 6) Information about Government schemes for farmers.

The existing system for finding suitable crop is not available and if available then there is no android application for it. Some have websites while others don't have one and the work is done manually. The farmer's use their learned methods from over the years only. The farmers don't have access to the necessary resources and also they lack knowledge like the effect on soil if continuously sown with the same seed over a number of years. Since, there is lack of resources and knowledge, lots of efforts are invested with very less produce which is unprofitable. [2]

The proposed system smart-krishi seeks to tackle such problems by developing an android application which enables farmer to get availability of resources and suitable crops that are suitable for that particular area. This paper intends to propose a system which reduces the efforts of the farmer and increases the yield thereby saving time and money, also efficient utilization of resources and money. Along with this information, the system assists the farmer in finding the nearby market places, pesticides shop, labors through contractors. [3]

3.SCOPE OF RESEARCH

For any project to be successful, it is necessary that it will, satisfy all the requirements of the user. The user must feel comfortable with the system when he/she is using it. To achieve this, the system describes the scope of the project which should be accomplished within the deadline. If it

achieves all the requirements, then system will be considered as successful. Scope for any project can be local or global.

3.1 Local scope

The proposed system smart-krishi is based on agriculture which has been around since the existence of the Human beings but has continued to go along with new technology. Officially, it provides delivery of location based services and information regarding crops, labor and techniques using modern technology. It will be developed for farmers who previously had been harvesting the same crop throughout the time irrespective of being aware about the soil conditions and weather conditions were suitable for the crop or not, thereby saving a lot of their precious time, money and hard work. It will be delivered for their benefits in an interface format and farmers will be able to get suggestion regarding the suitable crop and also contact contractors for labor or cattle. It will display the options to view the various crops, which are suitable for the area based on the weather and soil conditions and improvise the yield and increase profit for the farmers. It will be designed to remain consistent and it will be made so that additional features for better processing time and additional factors for improvement. Along with the ability to find the nearest market places, this project attempts to ease the efforts to locate nearest market place too.

3.2 Global Scope

The global scope of system will deal with newer modules and tasks to be integrated and implemented in nearby future of project development and maintenance cycles.

As there are limited facility available in the rural areas, smart-krishi provides perfect solution to such problem also and expand existing business of various contractors by providing labor, cattle, logistics, thereby creating a new field for employment. Android Application is the trending technology in the market and as our technology advances, it can only expect to see more come out of this system to benefit farmers and to expand towards other locations.

3.3 Literature Survey

An average farmer family owns 5 acres of land, but due to fail in the rainfall or less rainfall in a year, crops fail driving debt ridden farmers to suicide. So, to tackle with the above situation, expert system has been used. Expert system is a computer based programs. Expert systems have been successfully used in various scientific and business applications. Expert system is also available in agricultural operations to assists the farmers to identify the suitable crops for their farmland. Expert system helps to carry out crop management incredibly effective, efficient way and offers a lot of accurate results to the farmer production

systems now-a- days. Authors have carried out a review on applications of expert system for or Disease Diagnoses of Crops around the world to make assessment of the ground realities on utilization of expert system by the farmers and benefits they realized. [1]

3.4 Objective

The objective of the system mainly focuses on two things: Ease in finding the ideal crop and help farmer simplify the process of farming. The system would help farmer find nearest market place, suitable crop and other location based services on the map which help reaching there easier. Also, weather alerts will be helpful as farmer gets sufficient time to take preventive measures. Also, farmer need not search a lot for contractors, shops, pesticides as the details will be provided in the description.

In short, system will be providing following features:

- 1) To get the details of laborers easily using firebase database.
- 2) User-friendly app by providing simple user interface.
- 3) Scheme Awareness with the help of web scrapping.
- 4) Less efforts, more produce by providing weather updates and nearby marketplaces.
- 5) Regional language provision.

3.5 System Overview

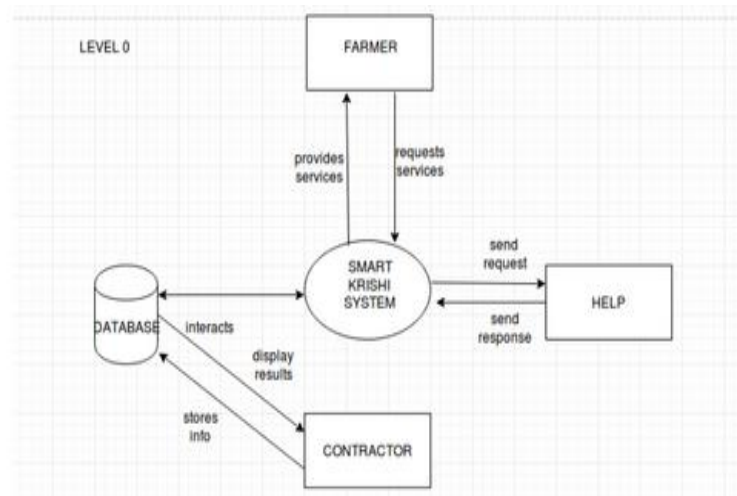


Figure 2: DFD 0

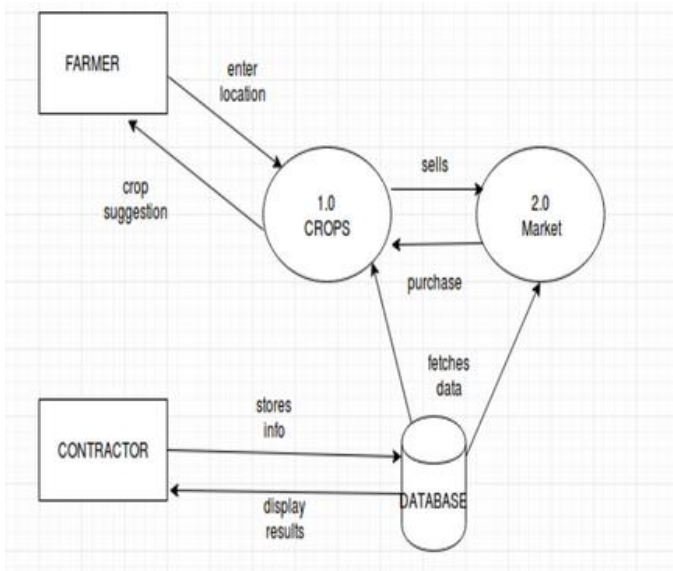


Figure 2: DFD 1

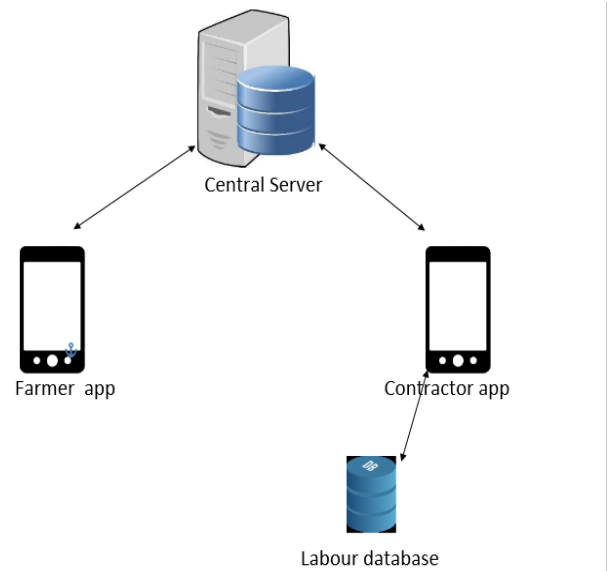


Figure 3: Basic idea of application

The application has 2 parts:

1) Farmer

- i. Elegant and rich user interface using the latest material design designing method.
- ii. Use of best possible algorithms in searching and database queries which helps user get an easy and smooth experience.
- iii. The biggest advantage is that the application will run in regional language so there is no need for the farmer to know English language.
- iv. System suggests the probable disease associated with the crop giving enough hints to farmer to take preventive measure.
- v. In case of any problem, system also provides to contact the helpline number through call or SMS.
- vi. System also gives videos/audios regarding the technologies that can be used to enhance the yield of the crop.
- vii. System also provides information regarding various government schemes.
- viii. Farmer can select number of crops, market place, contractors to display within the radius. System will show the nearest possible 'n' results
- ix. Farmer can check the contact details of the contractor or dealers for crop seeds, marketplace.
- x. Farmer will get the weather alerts also, so that sufficient time is provided for taking preventive measures before any storm or natural calamity is occurs.

2) Labor

- i. Contractor doesn't need to maintain the labors schedule.
- ii. Contractor can manage their time efficiently and expand their business.

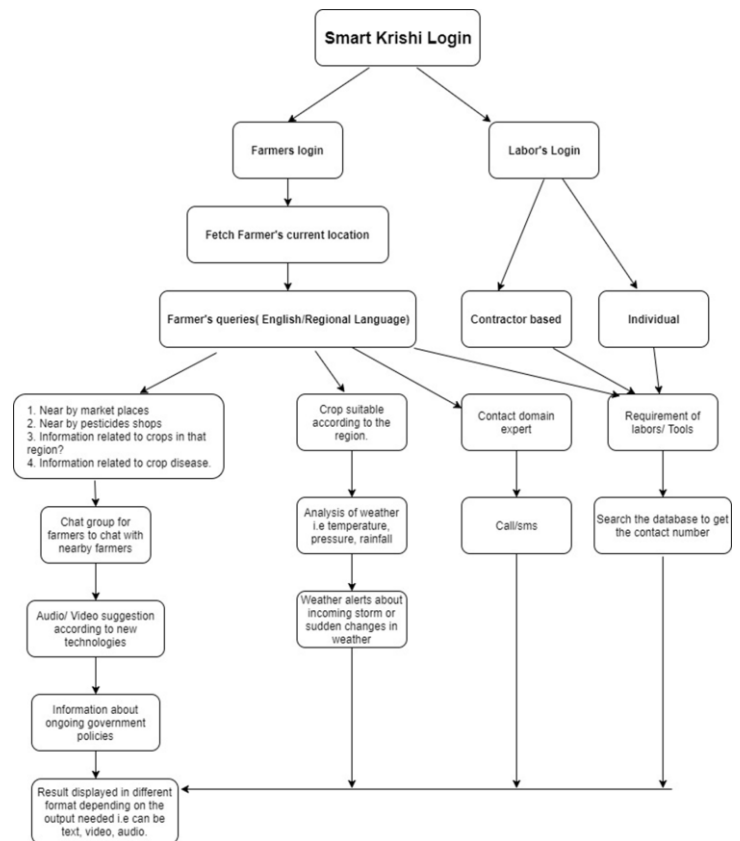


Figure 5: Flowchart of the application

4.METHODOLOGY

- 1) Searching of nearest market-place and pesticide shops.
- 2) Weather updates
- 3) Displaying of government schemes
- 4) Regional language support
- 5) Hiring of labors in real-time

[5] de Silva, Harsha and Dimuthu Ratnadiwakara (2008), 'Using ICT to reduce transaction costs in agriculture through better communication: A case-study from Sri Lanka', mimeo, 2008.

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5.CONCLUSION

Although location-based services have been around since 2000, they have mostly been used in commerce with a subscription-based business model. The release of Apple's 3G iPhone and Google's LBS-enabled Android operating system, however, has allowed developers to introduce millions of consumers to LBS. According to the 2008 fourth-quarter report from Nielsen Mobile, a division of The Nielsen Company, location-based services account for 58 percent of the total downloaded application revenue for mobile phones in North America. [4].

In this manner, the system will be developing location based system which will help the farmers to produce crops in an efficient way by getting the updates about weather condition. Laborers will also get benefit of full-time employment by providing their details to the farmers. Farmer just need to provide the details of their address and our database will fetch the location detail so that it could provide nearby marketplace in their area, crop suggestions and weather updates. Farmer can further use the system in their native language.

6.REFERENCES

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