

FARMER FRIENDLY APP

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ABSTRACT- In India most of the population is depending on agriculture and it is the backbone of the Indian economy. Agriculture is generally said to be an uncertain profession in terms of profit due to various reasons. The most prominent reason apart from natural calamity is lack of information in practicing agriculture in a scientific way. If all the important information is available to farmer in local language through a mobile phone, then smart-agriculture practices can be adopted by farmer and the profession of agriculture will be a profitable profession. So, keeping this concept as a domain, an android app which involves each and every information about plenty of crops, their marketing value, soil information, fertilizers and pesticides to be used according to crops disease, temperature, weather and machine information etc., is proposed to assist the people or farmers to produce better crops. This application is provided with language interface. Android app is designed with ANDROID STUDIO, Firebase with the support of open source statically typed programming language called KOTLIN. In this particular paper there are various types of modules are designed to manage information regarding Agri machines and machine tools, different crops, pesticides, diseases etc., in a user-friendly manner.

KEYWORDS: Agriculture, Android, Crops, Soil, Module, Kotlin.

I. INTRODUCTION

Agriculture is a prime profession as country's 80% of population is involved in agriculture and agriculture related profession activities. The purpose to develop this application is to provide information related to agriculture. This application provides seeds, soil, fertilizer & crops information. Soil information is important to know which seed better suits to grow on which type of soil to get more profit in agriculture. On considering the seasonal crops because they grow according to season which leads to yield better crop production. Fertilizers and pesticides will play an important role in the farming to add nutrients to soil as

well as to kill the insect's harming crops. These are used to increase the production rate of crops.

Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps. This uses Kotlin which is a general purpose, free, open source, statically typed "pragmatic" programming language initially designed for the JVM (Java Virtual Machine) and Android that combines object-oriented and functional programming features. It is focused on interoperability, safety, clarity, and tooling support.

Every developing economy has agriculture sector as irreplaceable pillar and so does India. In India the agriculture sector contributes close to 20% of 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 wide spread network of mobile phones could be the game changer in this problem. The main purpose for such project is to develop a mobile phone-based solution that helps in farm management, leads to agricultural yield improvement and helps in maintenance of agriculture.

II. LITERATURE SURVEY

In our India most of the population depends on agriculture in terms of profession hence in order to provide proper guidance about efficient use of farm lands, cultivating crops, use of machines we need best guidance to refer, for that so many apps and websites are developed. Below are some projects related to agriculture apps.

Kisan Suvidha – This app was launched by Prime Minister Narendra Modi in 2016, this app mainly built due to work towards development of villages and empowerment of farmers. This app design is attractive and offers a user-friendly interface. This app involves information of weather, marketing price of the crops and selection of language and some more features.

Pusa Krishi – This app was launched by Union Agriculture Minister in 2016. This app mainly includes aim, that farmers will have to understand about new technologies developed by IARI (Indian Agriculture Research Institute). It will provide information about new crops cultivated and more.

D. Magheshkumar, M. Pavithra “Forming Assistant Web Service”, which is a web - based project which help farmers to communicate directly with a supplier. This is best known for business communication etc.,

Minwoo Ryu, Jaeseok Yun, Ting Miao, Il-Yup Ahn, Sung-Chan Choi, Jaeho Kim “Design and Implementation of a Connected Farm for Smart Farming System”. This is a web note given by Korean students that they used Internet of things (IoT), and some new technologies in order to give new structure of increasing opportunities in the agricultural fields which describes how to use smart farming system.

Forming Assistant is a Web based project that will help the farmer for great profit by using mobile and Computer or system. Communication through consider for enhancing farmers to access better information about agriculture and market situation. The information shows that mobile phone saves energy and time of farmer.

Agricom is an android application that provides information to the farmer about the different crop and other agriculture products.

KRISHI VIGYAN KENDRA is an organization where we can collect the information about the agriculture related issues.

Farm Manager -The management of small farms, designed and developed to respond to the needs and Characteristics of farmers of Greek. It can store database, do farm customization, easy field

management, land field data, easy job recording process, employees and equipment.

AgroMobile – Developed especially for the Indian farmers to assist them in agricultural needs. It is used for botanical species recognition and disease detection using a simple mobile phone with camera.

Krishi Ville – It takes care of the updates of the different agricultural commodities, weather forecast updates, agricultural news updates.

Vimal B.Patel, Rahul G.Thakkar, Dr. Sangeeta Ahuja “Agricultural Android Application”, it is a forecasting and technical information regarding farming can be provided by the experts of farming community to the farmers by using new development in Information and Communication Technology (ICT). It is mainly IT based application installed in the Kiosk.

III. PROBLEM STATEMENT

Lack of information to farmers about seeds, cultivation, facilities from government and market prices are making agriculture a less making profession. A smart-agriculture approach is to be developed for helping farmers. There are several problems when we choose farm field as profession because of:

- Seeds
- Manures, Fertilizers and pesticides
- Irrigation
- Lack of mechanization
- Agricultural marketing price

IV. OBJECTIVES

- Increase the efficiency, with respect to help farmers to maximize the yields for every kilo fertilizer applied through knowledge sharing, balanced and crop-specific nutrition and technology.
- By optimal use of fertilizers, reduce emissions from fertilizer manufacturing.
- Optimize productivity on existing farm land by reducing pressure for deforestation
- Adapt scientific method to address the problem of water scarcity through product and technology development.

- The main objective is to illustrate the different types of agricultural activities and the benefits for the farmers.
- Formulate climate smart agriculture investment proposals and identify possible financing resources.
- To enhance the economic development of all stakeholders and to generate employment in order to combat vagaries of unemployment problem.
- To improve nutritional standards for improvement of health.
- To discourage rural to urban migration and thereby minimize congestion & other associated problems in the society.
- To contribute towards protection and upgradation of the environment for ensuing ecological balance, avoidance of global warming and healthy living for man and animal.
- To create marketing facilities to reduce post-harvest loss and distress sale of agriculture produce.

V. ARCHITECTURE DESIGN

The architecture mainly divided into three main parts,

- System diagram
- Admin module
- User module

SYSTEM DIAGRAM

System diagram shows overall design of the proposed Application.

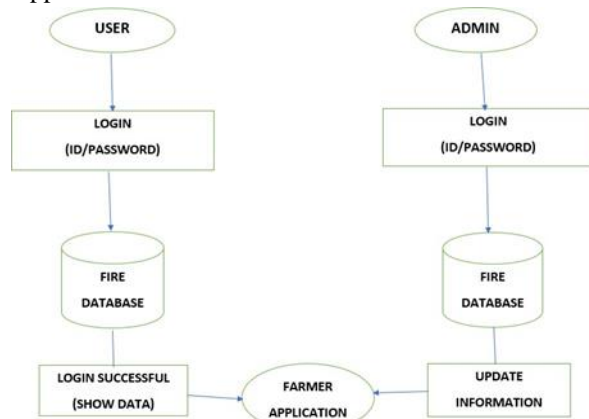


FIGURE 1: SYSTEM DIAGRAM

ADMIN MODULE

The user can open the application by using the ID & password and give information about farming according to the seasons. The admin also opens the Dashboard by

using admin ID & password. Admin provided the authority to adding, edit or update & delete the data. Application provides the interface communication to user and admin. One more think Admin can sell the own products by using the application. That purpose providing marketing interface for admin and user.

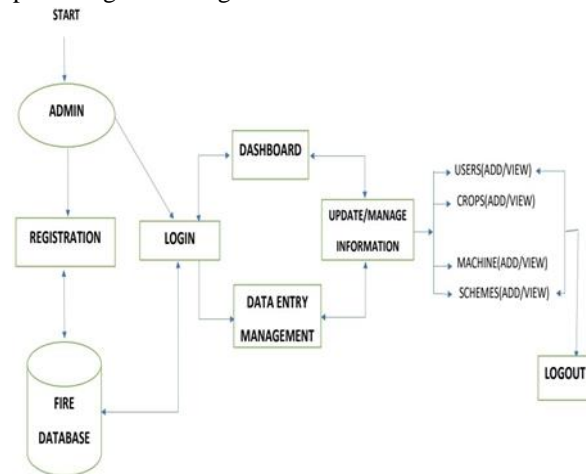


FIGURE 2: ADMIN WORKING MODULE

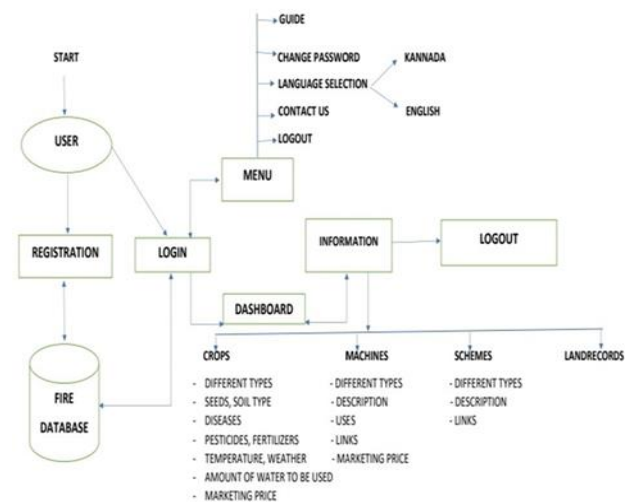


FIGURE 3: USER WORKING MODULE

USER MODULE

The corner stone notation for data modeling is the entity-relationship diagram. Three components are used in relational database design. Those are Entities, Attributes and Relationships. The user modules having one of the android application interfaces provide to the user. This application many options for helping the user just like login, registration, Farming information, seed information, Soil information, Weather and last one is help.

VI. FUNCTIONS OF PROPOSED SYSTEM

- Using Kotlin Instead of Java language which helps to reduce the code length, and increase the execution speed.
- Login and Register modules are done with Firebase, Encrypted and Auto generated and even for Database changes the admin also need to login with encrypted data with full secure using hashing technique.
- The project is mainly divided into client-side(front-end) and server-side(back-end) are create using appropriate languages like PHP, Kotlin, MySQL, FIREBASE and XAMPP Connectivity.
- The farmers will get guide section to know that, how to use app and how to access the contents.
- People will get the notifications about Marketing price and new scheme launched etc., announced by the Government.
- We added the section called land records where the people can know about their land information and bank loans etc.
- The people will get help section in which they can ask their queries through note, image or video.
- The app includes, crop, machine, soil, weather and water usage all information in one app.
- We are providing marketing prices where the people will get notifications if the marketing price is change.
- The app has language selection module.

VII. CONCLUSION

Different apps are developed and used by farmers for their specific purpose. All these apps have different uses as per its functionalities. Many apps are being utilized for different kinds of functionality regarding the farming activities like cropping information, pesticides, fertilizer, seed, selling of crops, irrigation information, estimation of crop production, weather information regarding the best practices of farming and machines used in the farming. We found that many of the apps are static instead of that dynamic Apps will be better to use also if all such listed functionalities are bundled into one single application and in the native language of the farmer then it will be easy to utilize it. Not only to farmers even developers will know about new trending technologies to use and how to implement the new design by having capability to solve thousand problems at a same time by using one application.

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