

# E-Agriculture Solution for Farmers

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**Abstract:** In a country like India, agriculture plays a crucial role. For around 58% of our population, agriculture is their main source of income. The biggest obstacle to the farmer's income is the profiteering middlemen. Farmers are facing problems while selling their products, and they are not getting a net profit for their effort. Karnataka's farmers are still on the losing side even after several efforts made by the government. Farmers are having problems reaching the buyers directly. The total volume of agricultural products traded through regulated markets in the country is very minimal. The main issue farmers confront is selling their crops at the proper price with average profit due to a lack of pricing and demand information in the markets. This project is an E-Agriculture Solution for Farmers system. The android application developed on the Android Studio platform. The project consists of six modules: admin, farmer, buyer, pre-production, machineries and APMC. Admin will be maintaining the data and uploading YouTube direct links, suggestions and blogs. Farmer uploads his product's picture, price and description about the product. Buyers will upload their details, contact numbers to reach out to the farmers. APMC module will be updating the current price of the products. Machineries contain the pictures of the equipment and details like name, contact number and rent price per hour. Java for coding, parse cloud for storing data, XML for better user interface is used. Tools like eclipse, android studio will be used. Using these, an interactive application can be developed. Application helps farmers market their goods to customers at a reasonable price and also they have more options in selling their products. Farmers can see and compare the product's price with the APMC price. Availability of machinery helps farmers to purchase it on rental basis. Farmers can get suggestions and technologies to improve crops yield. When a farmer decides to sell his crops, he can predict future trends for the crop as well as demand and price.

**KEYWORDS:** E-Agriculture, Android Application, Pre production, Farmer

## I. Introduction

Agriculture plays a crucial role in India. For around 58% of our population, agriculture is their main source of income. Despite this, farmers face a range of challenges. Some of the major problems are related to agricultural marketing. In India, horticulture crops occupy 264.57 lakh hectares with a production of about 3199.69 lakh M.T. Farmers are facing problems while selling their products, and they are not getting a net profit for their effort. Karnataka's farmers are still on the losing side even after several efforts made by the government. Farmers are having problems reaching the buyers directly. The objective of this project is to design a user-friendly android application to help farmers to grow vegetables and fruits without any waste and fetch the right price for their produce, and link farmers with markets to prevent intermediaries from reducing their profit. It is vital to help farmers fetch better prices for their yields. Farmers can know the current price of the products in the APMCs. Farmers receive pre-production assistance by providing demand and supply statistics. The availability of farming equipment allows farmers to purchase it on a rental basis. The support of other farmers through supportive blogs and pictorial representation of YouTube links.

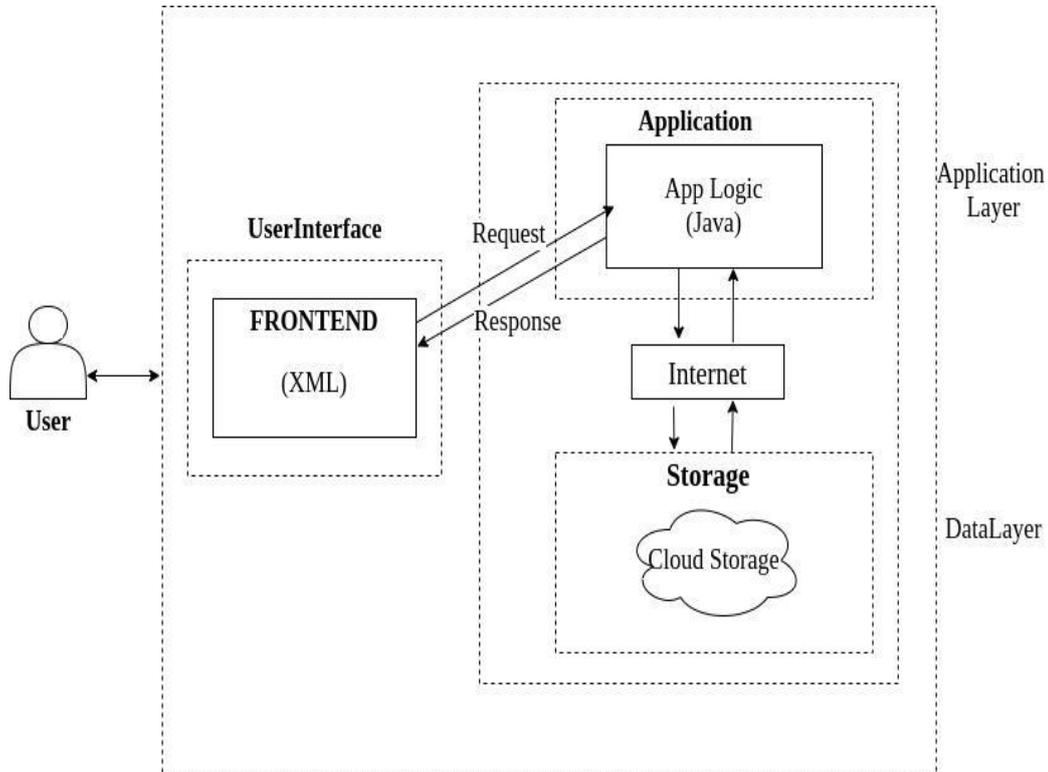
## II. LITERATURE SURVEY

Sunidhi Sharma et al. addressed the current Android applications [1] for farmers in their article, including how they should be built and what features will actually assist farmers boost their yields and understanding of farming. The paper explored what adjustments should be made in existing applications to make them more accessible to a wider audience as well as the advantages of the Android operating system. Shankar M. patil, Monika Jadhav, Vishakha Jagtap [2] proposed a system using android and mysql. In this paper authors explain about various modules in their system such as weather forecasting, market rate, government schemes and how they are beneficial to farmers. Sushanth M, Roopesh Gowda S, Sharath M Holla, Prajwal S, Dr. S. Prabhanjan, and Mrs. Sumana C [3] describe how smartphone applications are utilized for agricultural marketing. The authors developed a system which benefits farmers by digitizing the rise and fall of agricultural products on a daily basis and they can contact warehouse owners, distributors, and the closest local market hub. Manisha Bhende, Mohini S. Avatade, Suvarna Patil, Pooja Mishra, Pooja Prasad, Shubham Shewalkar explained about an application [4] which will provide the feature where farmers will receive accurate information about various programmes and where all government notices pertaining to agriculture will be updated. Manisha Bhende et al. developed an application using android and firebase. Heru Nugroho, Robbi Hendriyanto and Kautsar Tisamawi [5] built the application using the Software Development Life Cycle (SDLC) prototype technique, which featured Java and XML programming languages as well as MySQL. This software provides information about agricultural products while also making it easier for farmers to market their products and conduct direct transactions with customers. Modern farming practices are completed significantly faster with Android applications, resulting in improved earnings for farmers. By giving information on market prices, the modern farming method using an Android app seeks to promote transparency in the agriculture produce marketplace, supporting group procurement of

inputs, and facilitating group selling of goods. Farmers will find it easier to use if the functions are bundled and in their own language.

**III. Methodology**

The project consists of five modules: pre-production, sales, admin activity, blogs and machineries. Pre-production module gives crop prediction and market needs. In the sales module the farmer uploads his product’s picture, price and description about the product. Admin activity maintains the data and uploading YouTube direct links with the help of photos and also admin updates the current price of the products according to the markets. Machineries contain the pictures of the equipment and details like name, contact number and rent price per hour. In the blog module, farmers share experience with others. The Architecture of proposed work described as shown in Figure 1.



**Figure 1: Architecture Design**

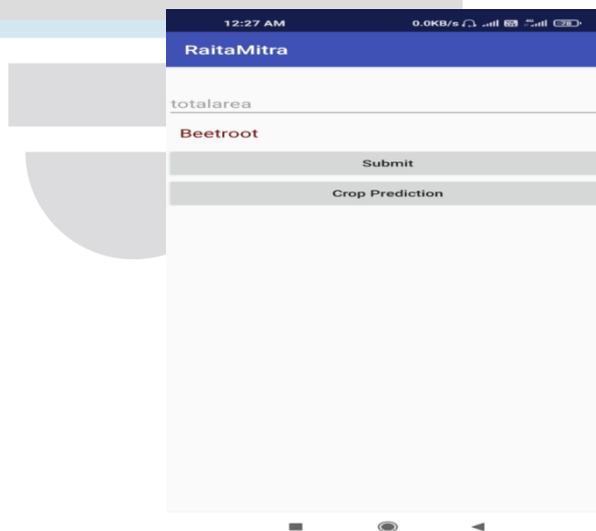
Figure 1 represents the architecture diagram of E-Agriculture Solution for the Farmer System. It contains three layers or three tiers. User interface which includes all the users of the application. The data tier is where data is handled and stored, while the application tier is where data is processed.

**IV. Implementation**

**1. Preproduction :** Pre-production module gives crop prediction and market needs by taking the number of acres entered by the famers.



**Figure 2: Pre-production Support Page**



**Figure 3: Crop Registration Page**

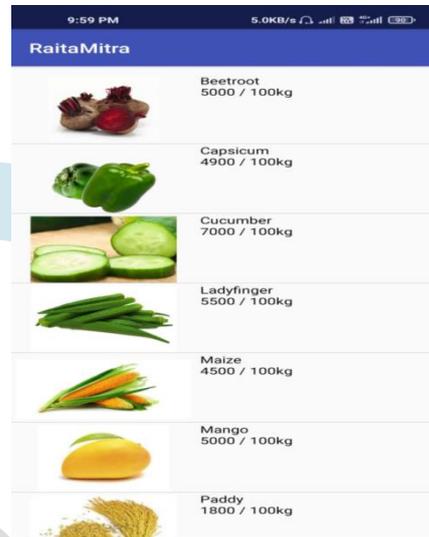
Figure 2 represents the pre production support page where farmers can view the number of allowed areas and registered areas for particular vegetables or fruits. Figure 3 represents the crop register page where farmers get crop demand by registering crops and also farmers can get the crop prediction option to predict crop yield.

**2. Admin activity :** Admin activity maintains the data and uploading YouTube direct links with the help of photos and also admin updates the current price of the products according to the markets.



**Figure 4: View Mandi Page**

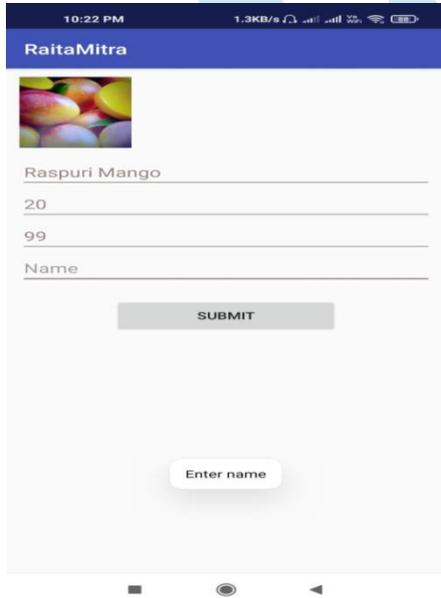
Figure 4 represents the view mandi page where the user can see APMC’s map links.



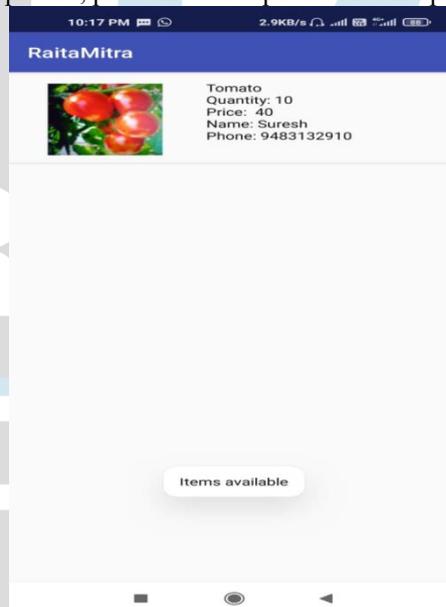
**Figure 5: View Market Rate Page**

Figure 5 shows the view market rate page which includes the current rate of the agricultural products according to market price.

**3. Sales:** In the sales module the farmer uploads his product’s picture, price and description about the product.



**Figure 6: Upload product page**



**Figure 7: View product page**

Figure 6 shows the upload product page where farmers upload their agriculture products with all the necessary information.

Figure 7 is the view product page where agricultural products uploaded by the farmers are visible to the buyers.

**4. Machineries:** Machineries contain the pictures of the equipment and details like name, contact number and rent price per hour.



Figure 8: Upload FarmEquipments

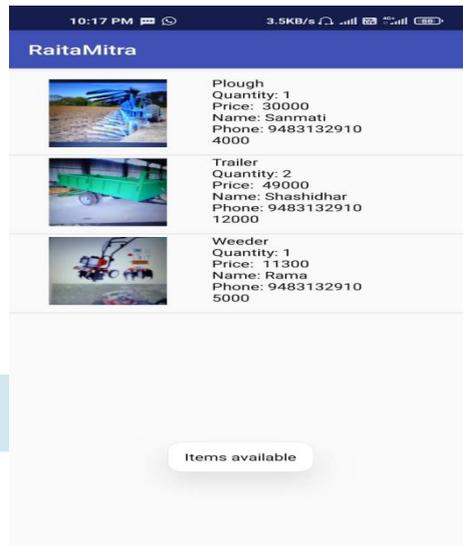


Figure 9: View FarmEquipments

Figure 8 represents the upload farm equipment page where any user can upload their farming equipment for sale. Figure 9 shows the view farm equipment page where uploaded machinery is visible to the farmers to buy with required information.

5. **Blogs:** In the blog module, farmers share experience with others by writing blogs.

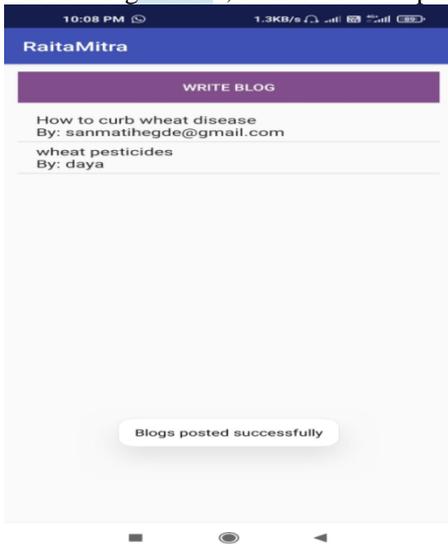


Figure 10: Blogs Writing Page

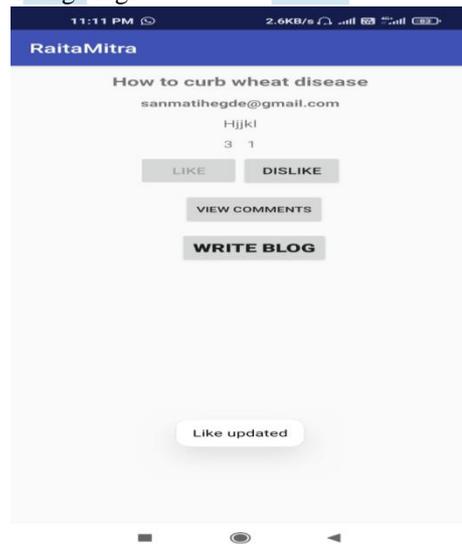


Figure 11: Blogs View Page

Figure 10 represents a Blog writing page where the user writes the blogs and sees other blogs.

Figure 11 represents the blog view page where users can read what others have written and also they can like or dislike the content.

## V. CONCLUSION

Application will surely be a valuable proposition in contrast to the changing business and consumer requirements. Each of the activities designed in this project have independent functionality. So to include all the functionalities in a single platform was difficult. However, every effort has been made to guarantee that the application is completely operational and functions properly and efficiently. All possible data was used to test the application, covering all potential options, and all outputs were verified. The programme is adaptable and modular, making it simple to incorporate new modifications. Application allows farmers to sell agricultural products by avoiding mediators. Farmers can purchase or sell farming equipment. Users get blog support to share their experience and they can also like/dislike the content. Farmers will get pre-production support like market needs and crop yield predicted. Preproduction support involves helping farmers to make the right decision of crops based on crop demand. The server in the cloud is updated with the data collected from the survey agencies. Using the Android application on his phone, the User, or in this case, the farmer, registers themselves in the system. The users retrieve information on the total number of acres that have been registered by farmers as well as the current state of demand for different crops. The farmer then selects a crop that is in high demand and registers it on the system. The server refreshes the

information and notifies the user. Users can buy goods by getting in touch with producers. Farmers get access to current market rates as well as choices such as checking local markets.

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