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Android App to Connect Farmers to Retailers and Agricultural Machinery Rental Business

Miss. Monali Pagar[1], Miss. Manasi Nehate[2], Miss. Aditi Godse[3], Miss. Shrutika Patil[4]

[1, 2, 3, 4]Computer Engineering, Savitribai Phule Pune University
Late G.N. Sapkal College of Engineering, Nashik, India

Abstract: Agriculture serves the most fundamental task of providing humanity with adequate food supplies. The farmer's economy has to be met in order to accomplish this task. One of the best solutions for fulfilling the task is the marketing of agriculture. It involves the purchase from farmers of agricultural products. Some farmers are ignorant of the prices of commodities and sell their goods to third-party suppliers at low prices, resulting in huge losses for farmers. We will create an android application of farmer product marketing to solve this form of situation, which provides better knowledge of the commodity prices of current marketing strategies at different locations. This helps to find buyers and suitable sellers. It also allows farmers to select the best position on the market for the goods to be sold. They also required different farming machinery for crop production, but they are unable to buy the high cost equipment due to poor economic conditions, another choice left is to take the machines on loan. It helps to build a web-based business management system to ensure that agricultural machinery rental businesses are run efficiently and handled transparently.
Keywords: Agriculture, Farmers, Product, Buyers, Sellers, Agricultural machinery, Management system, Rental business.

I. INTRODUCTION

Farmers face several problems because of business strategy, such as they won't get the price for their commodity as planned there. Other than planting, the farmer also controls the transportation, stockpiling or storage that is integrated into the agribusiness industry. These exercises in the agricultural business of the economy are deficient. The factors that demotivate the efforts of the farmer are transportation, where the farmer has to bear the cost of transportation because the market is far from the place of agriculture. It is the key barrier in the path of good marketing. Farming areas are not connected by roads to the market place. Because of the transport issue, a lot of agricultural produce is wasted. The farmer loans the cash to others to buy the seed on the market. The improved seeds and fertilizers are not used by farmers, so the product quality is very poor because of the low prices on the market. Storage facilities are also a big concern for suppliers and the government in terms of storage. To sustain and sell their product at an appropriate time, farmers need warehouses. In order to hold reserve stocks, the government needs a shop. Due to the lack of storage facilities, a lot of produce is lost due to the lack of storage facilities, because of the intermediary bodies, the farmer does not get enough prices for their product. Without doing something, the intermediary companies take a major share of the farmer's profits. A farmer is not familiar with numerous transactions for his commodity taking place at different locations or best deals. This knowledge is given in a small quantity by the Intermediate Agency which takes a major fee on it. The middleman gets more income than the farmer. The existing strategies that are present in agricultural marketing is totally a big loss for the farmers as there are third party agents who are making fraud prices to cheat farmers .

II. PROBLEM STATEMENT

Agricultural products are also unavailable and have minimal data on the actual market price of the goods as well. Local markets are almost often inefficient when selling goods on national markets. So, with our new idea, we will solve this problem. Farmers may also rent machinery or farming equipment from other farmers when appropriate.

A. Problems Existing in the Current System
1) No updated market details on the daily prices of goods for farmers.
2) Increased participation of third-party suppliers in determining the commodity price.
3) No proper control of agricultural products by the government.
4) No proper marketing equipment for the farmers

III. LITERATURE SURVEY

In his report, Gauravjeet Dagar claimed that the fundamental motive behind promoting the Marketing Information System (MIS) data structure is to enable farmers to understand the various marketing strategies that advertise basic leadership and showcase the efforts of business people and farmers. The author claimed that the farmer should know effective information about the real market prices and if it is available on a single platform, then the farmer will get the value. In either case, for various kinds of associations, such as government, advancement associations, academics, and scientists, the data is additionally helpful. Access to auspicious and reliable data for each person invested is therefore fundamental, irrespective of whether it is provided by the administration itself or by the private party.

This paper discusses the various forms of prevailing agricultural advertisement data structures and aims to provide a broad perspective on the promotion of the data structure. Using an illustrative approach, it aims to represent and analyze specific horticulture advertisement data structures to build ideas and bits of information that may be useful for the development and strengthening of MIS in the agribusiness segment [2]. Shakeel-Ul-Rehman et al [1] suggested that there is a need to change the marketing strategy

The author of the farming company said it was time to introduce technology for the sale and purchase of agricultural products. It is also reported that there are different problems and challenges for the marketing of agricultural businesses: lack of consumer awareness, lack of agricultural knowledge.

Abdul Razaque and Md Salleh Hassan [3] in their study stated that the mobile phone playing the important role in agriculture development mobile phone use in developing nations is assuming a crucial part for the upgrade of farmer business towards farming. As of late, cell phone communication is seen as important in enhancing the entry of ranchers in order to better understand rural market circumstances.

The use of internet cell phones is increasingly growing among individuals to obtain information on relevant issues, problems and their solutions in the field of agriculture. Mobile phones play an important role in developing countries such as India, as well as reducing the cost of contact and information in agricultural businesses.

The Cultivating People Community recognizes cell phones as an easy, fast and helpful way to connect and find solutions to individual problems. The mobile phone has provided an open door for ranchers these days, in particular to obtain information on promotion and environment.

Through this crucial innovation, they remain in close touch with advertising workers and provide fair costs to build them. In addition, the usage of cell phones keeps them mindful of climate conjecture for the application of farming knowledge such as compost and pesticides that may be affected by unanticipated fiascos as imparted by the metrological office. This gadget has provided new direction and way to deal with ranchers in order to interact quickly and share late advances with each other. The tests revealed that mobile phones have saved farmers' vitality and time and consequently increased their incomes. Mobile phones have provided ranchers the ability to communicate directly with exhibition representatives and consumers to sell their commodity at a great price.

Innovations in data correspondence are increasing in the development of nations for the advancement of different people, such as educators, specialists, and farmers. In creating nations where they have no offices in their general vicinity to increase their commodity and pay, the ranchers are one of the huge groups.

Among farmers, the mobile phone is expanding, but at the same time, companies, consumers, and ranchers are all available. There is a need to update various mobile phone advancement tasks where farmers could have easy access to talk to individuals to sell their goods in the showcase.

Similarly, the administration and other relevant divisions should prepare to attract these ranchers and provide the latest crop, climate, and market data on time and offer a large cost of their items [4].

With the aid of numerous articles, journals and blogs, we discover the various working process Systems to rent. We learn from these articles how to handle both the online equipment shop. As we learn how to manage the user's demands from the study documents. This survey allows us to define the numerous problems that occur when recruiting any online material. The websites gave us the basic idea of the general renting system.

Bike Sharing and Rental System, This paper is proved very helpful as it says about the bike rental system which shows us the complete working of bike rental system. The optimal distribution of bike sharing stations should first of all cover the stops of medium/long range transportation modes.

We can say that most of the station is visible; the more effective is the location. This paper explains the complete bike sharing and rental system in which the user hires a bike from this system.

The amount of rent is calculated by this system with respect to the time [5] Web-based Agricultural Machinery Rental Management System (Research Article on Science Central Journal) A user searches through the agricultural machinery database (set up by the administrator) and selects the desired equipment to rent, at which point the terms and conditions and the rental fee are confirmed and an online application form is submitted. The contents of the application are stored on the DB server, and the administrator queries the reservation list and manages the fleet of agricultural machinery. This study was conducted to develop a web based business management system to ensure the efficient operation and transparent management of government subsidized agricultural machinery rental businesses.

In this article it is clear that the government will provide the agricultural machinery to the user. From this article we learn about the requirements of farmer's [6] Online Car Rental System using Web based and SMS Technology, This paper described a notification-based content alert and web-based system using SMS technology. It was specifically developed for the alert notification to the customers about the car rental information, and the availability of the car reserved. The main purpose of developing SMS-based content alert for car rental system is to reduce the cost and time consumed, which is beneficial to the car rental agencies and customers. Therefore, the system was designed automatically to send an alert SMS to the customers about the availability of the car reserved [7]

IV.PROBLEM STATEMENT

The proposed scheme guarantees a steady market as well as a better return for the farmers and can also cope with the farmers' basic problems. It safeguards the rights of consumers and producers alike. The fundamental aim of this scheme is to establish a market for farmers to directly sell their products to retailers and the food processing industry. It is an application for the Android platform that farmers can typically use to sell their crops online. The main aim of this application is to eliminate the middleman brokers because, because of the middleman brokers who buy farmers, they grow at a low rate and sell them on the original market at a much higher rate. Farmers can also link themselves to the food processing industries and consumers using this app.

More and more raw materials are required by the food processing industries so that they can get directly from farmers with distinct product quality. This system is designed to solve the problems that normally arise when farmers choose to rent agricultural machinery for the purpose of agriculture.
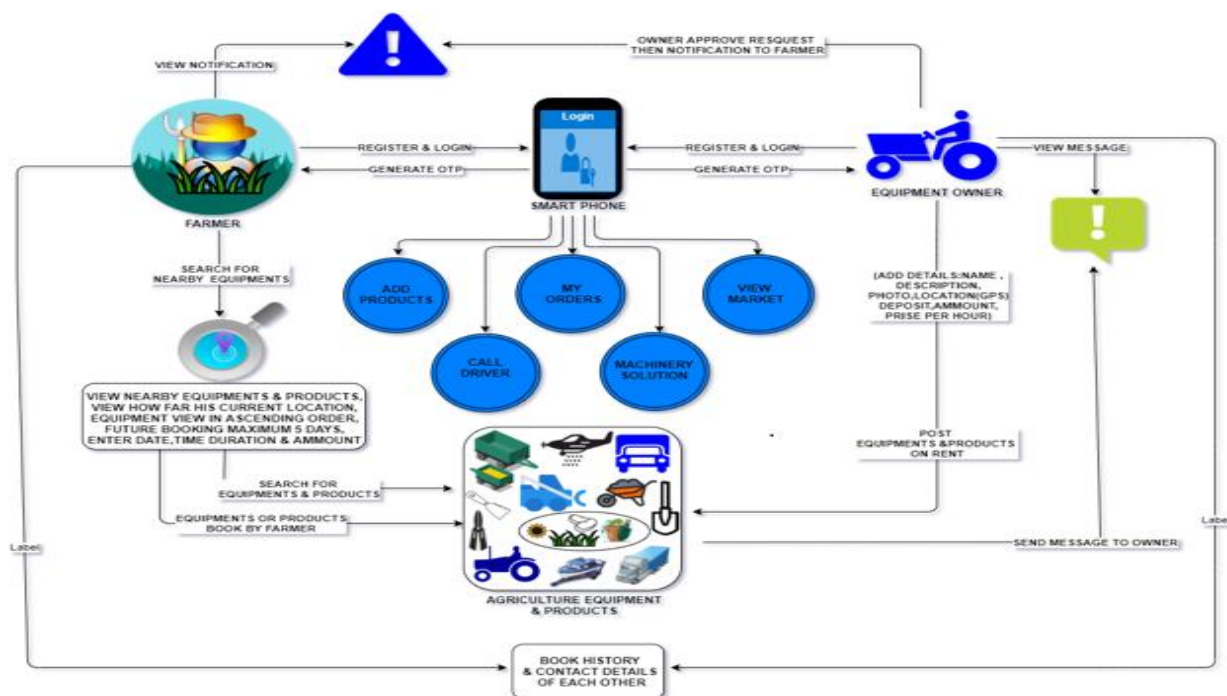
All operations are conducted manually in this and have been performed on mobile technology. We are going to create an Android application for farmers to hire agricultural equipment in which there are key modules. The user will have to enter it correctly after obtaining the OTP. The Login page will be shown whenever the user logs for the first time, where the user has to enter information such as name and address, etc. If it is already registered, the user will proceed to the next process. The user (farmer) has to enter his/her mobile number and other information in the registration module, the device will send the one-time password (OTP) to the user, the user only has to enter the same OTP to the mobile for confirmation.

The Store List module includes a variety of stores in which various types of agricultural equipment are available. With the name of the other person, data such as address, pin code and contact number of each store is present. Users may pick any equipment owner to lease agricultural equipment in this module.

This module includes both a module for the equipment list and a module for the list. A collection of equipment used for agriculture is included in the equipment list module. Depending on their agricultural requirements, users can pick any of the equipment. In this module, the total number of facilities available in the store is also given.

The consumer will hire the agricultural equipment as needed in this mobile application. This module on the tractor and equipment helps to   view the list of various agricultural equipment. The user just has to pick the farm equipment. According to the needs of a user, this module will take the input of the number of hours and also measure the total sum. This module provides a list of agricultural tractors. Users would have to book it to hire an agricultural machinery by filling in some details that falls under the booking module.

The booking module is responsible for the operations like hiring the agricultural equipment. To hire agricultural equipment, the user will have to enter the number of hours, select date and time. After entering these details user will have to confirm booking, future booking will be done maximum 5 days. Then the user will get the total price of the agricultural equipment and hence the booking will be confirmed successfully. The customer will then get the total price of the agricultural equipment and the reservation will then be successfully verified. The rent per hour must be paid for after the customer has booked the agricultural equipment. As explained by our proposed system, the user can register with details and get OTP for verification while another user can also login by testing the OTP verification form.

Fig: System Architecture

In ascending order, the farmer to see nearby equipment means first seeing the nearest equipment and also seeing the far place of that equipment. Equipment information with deposit and price per hour of that equipment should be applied to that equipment owner. When Farmer can book the equipment with date, length of time, and after that he will also pay the price per hour of the volume. He will be the future book that has a limit of 5 days of equipment. If the farmer books the equipment, then sends MSG to the owner of the 'He has new order' equipment. If the owner accepted the order, he resends the MSG and notifies the buyer farmer that the application for a rental agreement has been approved. Both users can see each other's history and contact information.

To satisfy defined requirements, system design is used to describe the architecture, modules, interfaces, and data for a system. The design of systems may be viewed as the application of the theory of systems to product creation. There are different diagrams that can be used to represent the system or project's method and flow. The farmer and equipment owner who wishes to book agricultural equipment will log in. The mobile number can be used to register all users. Upon login, the user can check for nearby equipment, select the appropriate equipment, and the user must enter the number of rental hours. After booking agricultural equipment, the payment details will be collected by the customer.

Agriculture Equipment Rent Based Application has the following modules:

1) *Login Module:* This module is responsible for the function of logging in. In this module, the user will have to enter a mobile number first in order to create an OTP. Users will have to type it correctly after receiving the OTP. The Login page will be shown whenever the user logs for the first time, where the user must enter information such as name and address. If registered already, then the user can proceed for the further process.
2) *Search List Module:* In the search list module, there are numbers of owners of the equipment required for various types of agricultural equipment. Photo farming equipment is issued with the name of the owner, information such as address, pin code and contact number. Users may pick any owner to lease agricultural equipment in this module. This module includes both the module for the equipment list and the module for the agricultural equipment list. Equipment can be viewed in ascending order by consumer as closest first. The consumer can book the equipment for a maximum of 5 days in the future. He also points out the date, location, hour length and deposit number, as well as the rental price of that equipment per hour.

3) *Module for the Post Equipment List:* This module includes a list of equipment for agricultural use. According to their agricultural requirements, the user may enter equipment information. With photo, location using GPS, price per hour and deposit amount for that equipment with equipment description, the owner may add information of that equipment

4) *Booking Module:* The booking module is responsible for things such as the renting of agricultural machinery for sale. The user would have to enter the number of hours, pick the date and time, to hire a tractor or equipment. Upon entering these information, users will have to confirm their reservation. Then the customer will get the total price of the equipment for agriculture. If the owner can authorize the request, the user can send text MSG to the owner, then he can send text MSG with notification. The booking will then be successfully confirmed. After active booking, both users view the history and contact information of each other.

V. OBJECTIVES

A. Providing agro-products with a real-time online marketplace and removing middleman/brokerage.

B. Providing both growers and bulk buyers with cost efficient transporters.

C. Save money and time by renting farm machinery

VI. SCOPE

This project's future reach will include the implementation of this application on a broader scale, making it compliant with other software and other platforms. This project is initially deployed in a sub-area of a town. Then, depending on the demographics and agricultural requirements of that region, it can be deployed in various other areas for future scope. Depending on the specifications and the work area of the project, various other features may also be provided to users. In addition to farmers, the tractor owner may also register and make adjustments to his profile. It will have more regional languages in the future

VII. TECHNOLOGY NECESSITY

First, we have done problem analysis and we recognize the farmers' problem of renting agricultural equipment for different agricultural purposes and using our engineering skills, we have discussed and planned the solution to the problem by creating an android application. Different problems were faced while working on the solution, for which we conduct research on problems of our project, such as collecting information on different agricultural equipment used by farmers so that we can effectively meet the farmer's requirements. We have used the Marathi language to make the software easy for farmers to use. By upholding the ethics of application use, this application can be used by farmers. This software is created by cooperation and it is environmentally sustainable because it does not exist in physical form. To plan and build this project, we followed software engineering principles. We used the algorithm for concepts and languages for programming such as java. We followed the life cycle of software development to create our project. We also mastered the important aspects of working as a team after undertaking all of these tasks and completing all the procedures.

VIII. ADVANTAGES

1) *Develop Business Processes:* To be able to use internet technologies to enhance the d-demand process and the provision of agricultural equipment.

2) *Online Reservation of Agricultural Equipment:* A method by which a user may reserve available agricultural equipment online prior to the planned date or time of use.

3) *Availability:* Without even leaving the house, the tractor can be booked immediately.

4) *Transparency:* Customers will receive information on agricultural equipment and will receive previous rental information that they have to pay according to the hour of service.

5) *User Friendly:* In this app, we used two languages. One of them is English, and the other is Marathi. For farmers, it will make it easy to use this program.

6) *Flexibility:* Depending on their requirements, the farmer can choose long-term or short-term hire and can choose any form of agricultural equipment they need.

IX. DISADVANTAGE

The smart Android phone and internet connection are required for this device to scan for nearby equipment

X. EXPECTED OUTCOME

By introducing innovative strategies and using the online marketing system, the vision of this product is to ensure equal prices and to provide agricultural machinery to the farming community at the moment.

XI. CONCLUSION

We conclude that the issue statement is fully eliminated by the introduction of this project by implementing the project, which is 'agricultural equipment rent-based application and online marketing of agricultural products.' And through the android program, the aim is accomplished. This system would enable farmers and the food processing and consumer industries to achieve a better return. It safeguards the rights of consumers and producers alike. This app is a single window in which all producers, farmers and consumers can come together to get their product at comparable prices. The current agricultural labeling is unorganized, so this app will streamline the fare marketing of the agricultural business; farmers face many problems selling their products This app can help farmers easily sell their product and get good prices for their product. The app will split the margin of the trader between farmers and retailers/FPIs. Lower rates will pay families. The app would reduce the contact gap between farmers and retailers/FPI as it will provide farmers with a forum for selling their products at a reasonable price and at a marginal loss. The main contact link between farmers and the distributors/FPI is the marketplace.

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