



## Getting information of farm tools by clustering Vendors location

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### Abstract

Farmhand is an accessible discussion gateway which is based on the program languages of the Android. The application will help the farmer and agricultural students to get information about different crops and tools used by the farmer, and help them to sell and buy different crops and tools online. Also provide the platform for buying crops and agricultural items. The application also reflects the demanded cost to farmers or users. However, this app consists of another system which could be used for the determination of the cost as this system is handled by experts. Besides this, rental tools will be available to the users with this app. An expert system is assembled to determine the reasonable cost of grain for farmers to sell. For this, the required cost of grain that will be provided by the farmer This portal helps in transportation

Keyword: - agronomist, agriculturalist , expert System , rental tools

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### 1. Introduction

This is an application-based work serving to leading agronomist in any field and related workers. The accessible discussion gateway will be helpful in solving the problems of agriculture sector. Now-a-days, role of technology has been increasing for the development of an efficient agriculture system and mobile plays a significant part in this [1]. This is very well known that farmers need a variety of farming related tools, but due to money problems, they can't afford it. Help provide the equipment you need on your farm. This will also help in decision making regarding the markets and prices as the prices of the crops and grain market details updated every day. Furthermore, the agronomist stakeholders planned training modules. These training modules can be accessed by the general people on request. An expert system developed for determining the reasonable price of grain for farmers to sell [2]. This request provides the farmer with a cost of this module provides information on different teams of experts who examine the average market cost of crops, helping farmers to determine the desired market value of their products [3].

## **2. Literature Review**

This record gives an overall architectural view of system as this record uses various concepts of the architecture providing many views regarding this. These views of the architecture help in predicting the outlook of this system. The intentions behind this record are to grab and transfer the decisions of the architectures provided by the system only. Various students enrolled for agriculture programs, local and small farmers of India could be categorized under agriculturalists. These agriculturalists get remedies, advices and solutions to many problems from this portal [4]. There are various places which required several analysis done before government issued any loan or to avail any government schemes. The agriculture portal will carry out different analysis of a selected area which will be helpful to the agriculturalist for availing any government facility. This system will also provide platform to non-government organizations to campaign about the eco-friendly uses of resources including the application of organic farming in agriculture. Additionally, the persons sharing similar interests i.e., new ways of farming, alternatives of pesticides etc., can be connected with this common platform. Before this system, there are mid dealers which used to set the prices of the crops without following any fixed norms. Consequently, usually low prices were paid to the local farmers. However, this system will remove the mid dealers and strengthen the local farmers. The farmers should get the genuine prices of their crops. This system not only empowers local farmers but also provide the facts related to their agricultural lands and also their queries will be resolved here with the help of experts [2]. These issues will be addressed in this system by the expert panel. The proposed Application [4][5][6].

## **3. Proposed system**

The proposed application will target two different clients i.e., buyers and sellers. This has been taken into consideration that a farmer is illiterate (mostly), so the application can be easily handled by them also. Besides this, the application can be accessed by the farmers with trusted party. The demanded crops will be updated in the application by the buyers. The crops will also be listed in the application by the farmers. For the improvement in the crops, there is a system of feedback which provides the information of the crops. In addition to that, various equipments were required by the farmers; however, the economic condition of every farmer doesn't allow him for buying new equipments. To overcome this barrier, there is a rental, second hand and new equipments or tools facility in this application. The farmers or the buyers will be updated with the new government

schemes by this application. The application is very well secured at various levels of access. The user interface has been designed in a way that users easily handle it [7][8][9].

One of the most well-liked algorithm to be used to get nearby farmers is The general approach to finding nearby farmers can be achieved using the following steps [10][11].

1. Collect location data: collects GPS data from both Buyer and Seller to determine their current location [12].
2. Determine nearby Seller: Based on the current location of the Buyer, We can calculate the distance between the Buyer and all available Seller. This can be done using various distance metrics, such as Euclidean distance or Haversine distance [13].
3. Filter Seller: We can filter Sellers based on certain criteria, such as their availability, rating, and proximity to the Buyer. For example, Our App may choose to only show sellers who have a high rating and are within a certain distance from the Buyer [14].
4. Sort Buyer: Once the list of nearby Sellers is filtered, We can sort them based on specific criteria, such as distance or estimated time of arrival [15].
5. Display results: Finally, displays the nearby Buyer to the Seller in a user-friendly interface, such as a map or a list [16].

#### Algorithm For Finding Nearest Vendors

```
function findNearbyFarmers(buyerLocation):
    nearbyFarmers = []
    for each farmer in allFarmers:
        distance = calculateDistance(buyerLocation, farmer.location)
        if distance <= MAX_DISTANCE:
            nearbyFarmers.append(farmer)
    filteredFarmers =
    filterFarmers(nearbyFarmers)
    sortedFarmers =
    sortFarmers(filteredFarmers)
    return sortedFarmers

function calculateDistance(location1, location2):
    // Use Haversine formula to calculate distance between two GPS locations
    // Return distance in kilometers or miles

function filterFarmers(nearbyFarmers):
    filteredFarmers = []
    for each farmer in nearbyFarmers:
        if
        farmer.availability == true and farmer.rating >= MIN_RATING:
            filteredFarmers.append(farmer)
    return filteredFarmers

function sortFarmers(filteredFarmers):
    sortedFarmers =
    sorted(filteredFarmers, key=lambda farmer: farmer.distance)
    return
    sortedFarmers
```

In the above code, "buyerLocation" is the GPS location of the buyer, MAX\_DISTANCE is the maximum distance from the buyer within which we consider farmers as "nearby", MIN\_RATING is the minimum rating a farmer must have to be included in the results, and "allFarmers" is the list of all available farmers.

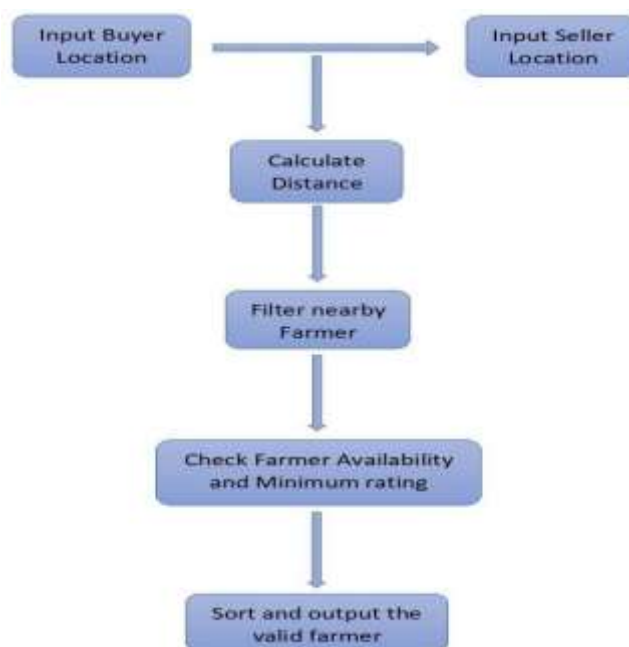
The calculateDistance() function uses the Haversine formula to calculate the distance between two GPS locations, and the filterFarmers() function filters farmers based on their availability and rating. Finally, the sortFarmers() function sorts the filtered farmers by their distance from the buyer.

### Google map: -

This application will use google map for location sharing as well as for distance calculation. Google map API needs to be loaded in script tag. So, its features can be used [17][18].

### Advantages of the proposed system

- The management of complex data regarding agricultural processes i.e., soils, market price etc [19].
- Enhanced security system at various levels of access [20].
- Elaborated and well developed user interface to access the application [21].
- Compilation of data in the form of a report at fixed interval [22].
- Efficient query handling [23].
- Proper maintenance of queries and answers [24].



**Fig1. Work Flow of Proposed System**

#### 4. Output Sources

**Main Page:** The default or first page of the database is based on proposed study title i.e., “Farmer Buddy”. This will be easily recognized by the agronomists that they are accessing a farmer based application [25][26].



**Fig 2. Main Page**

**Registration Module:** This is the registration portal for all the first users. The registration is mandatory in order to access the Farmer Buddy application. After the successful registration, the login ID and password will be generated this is used for using the application [27][28].



**Fig 3. Registration Page**

**Tool Module:** The module is designed in such a way that it provides various tools and equipments utilized in the agriculture sector. The users can search desired tools or

equipments and get them based on their needs. Rentals and second hand facility is also available in this module.

**Expert Team Module:** The facts, details and precise knowledge of the updated prices, market value understanding will be provided in this modules as they were analyzed by experts. This module benefits the local farmers in understanding the genuine prices of their products in the markets and this will also avoids their undue exploitation by the middle men or mandi dealers [29][30].



**Fig 4. Expert team module**

## 5. Results and Discussion

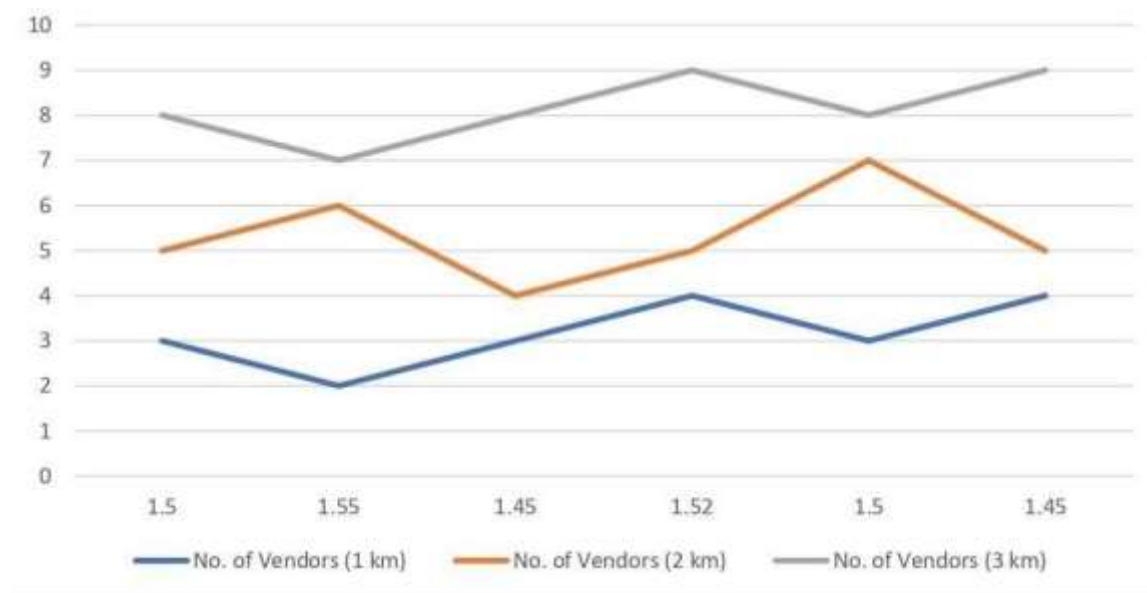
The Application was designed for overcoming the obstacles of the farmers by giving them access to the knowledge of different aspects of agricultural sector including the soil characteristics, soil analysis, present prices etc. This application will be useful for the leading agronomists who want to make their future in this field. Besides this, it will also helps in resolving the queries of the agriculturalist or future agriculturalist. This application empowers the agricultural sector of the India by strengthening the farmer's condition. This could be a fair chance to the investors and businessman for extending their business in this field also.

## 6. Result Set

Request Generated	No.of Vendors (1 Km)	No.of Vendors (2 Km)	No.of Vendors (3 Km)	No.of Vendors (4 Km)	Time Taken (sec)
1	3	5	8	10	1.50
2	2	6	7	9	1.55
3	3	4	8	10	1.45
4	4	5	9	11	1.52
5	3	4	8	11	1.50
6	4	4	9	10	1.45

**Table 1. Table Showing Time taken to generate Cluster of nearest location Wise vendors**

**Average Time Taken = 1.495 sec**



**Fig5. Graphical Representation of Table 1**

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