

A Mobile Application for Fertilizers Stock & Sales Monitoring for RBK

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Abstract—Even in this computer world few activities are being done manually. Rythu Bharosa Kendram is a place where few activities done manually. Government of Andhra Pradesh launched YSR Rythu Bharosa to assist farmers financially and to supply seeds, fertilizers to different sectors. RBKs are the medium through which the farmers purchase all the required fertilizers and pesticides. RBKs have to keep track of the availability of the fertilizers and pesticides. RBKs don't have any source to keep track of the stock. They are facing difficulty in checking the available stock every time whenever a farmer approaches. So, a mobile application is being developed for the RBK to keep track of the stock available, refilling and sales made so far. As there is no medium to keep track of fertilizers stock this app is well utilized. Our project helps the officers in analyzing the stock availability.

Index Terms— Flutter mobile App, RBK , Officers ,fertilizers availability , Refilling stock , fertilizers sold , flutter, sales details, firebase ,visual studio code.

I. INTRODUCTION

Rythu Bharosa Khendra(RBKs) are the places for assisting the farmers like provide seeds, fertilizers, pesticides and also maintain record on farmers. They also assist farmers in locating markets for their goods. The government has previously planned to provide agriculture implements at RBKs for farmers to rent and use at a low cost. Village Officers at RBKs maintain a hard copy record of their field review reports and availability of fertilizers and quantity of crops. Having an app or a website to store their record and also finding a nearer RBK's for them would be beneficial, so that higher officials like agricultural Officers can get a detailed timely idea of how's the RBK sales are serving the farmers. A Mobile application so to store the record data we use firebase and using flutter as an interface between RBK officer and agricultural officer. This app helps RBK officers to keep track of the fertilizer stock in their center, sales details which comprises of fertilizers sold, payment details, Task remainder set by the Agricultural officer and finding the RBKs in the respective State.

A. FIREBASE

Using firebase provides various functionalities such as authentication, real time database and many more at one platform. We have used firebase for authentication, storing and retrieving map locations, sales details, fertilizers details and from storing to retrieval of sales, fertilizers details, to-do list by individual officer. Firebase makes tasks simple and more efficient for data storage and retrieval.

B. FLUTTER

Creating a mobile application using Flutter. As Flutter provides many widgets that helps in building the

application efficiently and easily. Firstly login page which user login ,then navigates to home page which gives view of stock availability which displays fertilizers availability with stock, sales shows the details of particular RBK sales to-do list gives list of individual tasks, map gives locations of RBKs

C. OpenStreetMap

The heart of OpenStreetMap is a set of map statistics that may be utilized for a variety of purposes. On OpenStreetMap's main page, you can obtain a basic idea by browsing the arena map. To examine specific map formats while surfing, use the Layers button at the top right. It shows how OpenStreetMaps statistics can be used in a variety of ways. Many specific third-party services are built on OpenStreetMap's statistics because each user can access them with only a few restrictions. This type of service accounts for a significant portion of OpenStreetMap's cost. Each one serves you certain facts in a unique way. There is a lot more information available through those services that you cannot view. The below Fig 1 presents a sample map view of OpenStreetMap.



Fig. 1. Sample OpenStreetMap Image [1]

D. Motivation

To help agricultural department of Andhra Pradesh, the RBKs to automate the process of tracking the stock availability of fertilizers and make their tasks perform easier.

E. Problem Statement

To design and implement a mobile application that aims to create a source to keep track of the stock available, refilling and sales made so far. As there is no medium to keep track of fertilizers stock this app is well utilized by the RBK officers.

F. Scope

The scope of this app covers all requirements for the RBK in Kankipadu. Agricultural Officer and the RBK in charges are the stakeholders.

G. Objectives

The main Objective is to create an android application to

- Track the stock availability.
- Sales details.
- To Do List.
- Map displaying all RBKs.

H. Advantages

- No need of maintaining manual records.
- Task reminder.
- Keeps track of day to day data.
- Easy interaction between officers and higher officials.

I. Applications

- Tracking the stock of fertilizers.
- Sales Details.

- Task reminder.
- Map displaying all RBKs.

J. Organization

This paper is divided into sections where Section 2 describes literature surveys on various android applications. Section 3 details the proposed system. And the Section 4 details about the Results and analysis.

II. LITERATURE SURVEY

The whole discussion in this section is about the various literature survey papers that we referred.

Methodology describes [2] A mobile app is a tiny software programme for mobile devices. Mobile apps includes many features like needs for hardware, software, and network access. The mobile app qualities contribute in designing an acceptable mobile app. We give an evaluation of several available mobile app qualities in relation to current mobile apps in this study. The majority of mobile app users are drawn to the user experience, which is one of the most exciting and dynamic features. Furthermore, mobile app paradigms are crucial in the creation of mobile apps.

Advantages: The properties of mobile apps aid in the selection of an appropriate paradigm for mobile app development.

The method describes [3] that the applications today are more dependent on the unorganized data like videos, photos, audio, text and many other arbitrary types. This paper focused on usage of firebase with android application to get familiarized to terminologies. Few firebase features are detailed in this paper. Firebase made access to this data easier.

Advantage: Firebase provides easy and efficient way to handle the unstructured data.

Disadvantage: Firebase has less support to iOS.

This paper describes the UI implementation [4] of Mobile app developers may create sophisticated user interfaces (UIs) that enhance the user experience and contribute to the success of an app. To make sure that app's UIs are good in quality, developers invested in automated UI testing approaches. However, due to the availability of new APIs and techniques, such as fragments, UI implementation mechanisms have evolved.

Advantages: The automated UI has more quality UI in mobile applications.

Disadvantages: This requires additional analyses in development practices.

This methodology states [5] Google's Flutter is a UI framework for creating mobile apps. When developing Flutter applications, developers must deal with a state management challenge. Multiple architectures have been designed to overcome this challenge. A Flutter package is used to bundle and distribute the Flutter Clean Architecture. After creating the mobile app from the scratch and documenting it is validated. Flutter is the best option for creating clean architecture.

Advantages: Flutter applications are manageable at any time and provide vast options for android development.

Disadvantages: May not be suitable for all types OS.

The method in [6] allows farmers to sell their products at a reasonable price while also making commerce fair and transparent. Consumers are the polar opposite of producers. Customer can choose from number of products and customize according to their needs.

Advantages: Farmers may sell their commodities at a reasonable price, and the system makes commerce fairer and more transparent.

Disadvantages: The phone should have a GPS capability so that the consumer's location may be determined. Prices must be properly set.

The method in [7] or study looks into how mobile apps might help small-scale crop producers by giving them access to information, markets, and support services. The study reviews existing mobile applications and finishes with high-level recommendations for the creation of mobile apps to support small-scale agricultural enterprises, as well as a look ahead to future research.

Advantages: This application helps in improving efficiency of work and saves time.

Disadvantages: A high level of knowledge is required by farmers to understand every portion of the app.

The method in [8] was Rapid Application Development (RAD), for the development of the mobile application. Its purpose was to gather information on users' reactions to the planned application. They developed a farmer's market application as a result of these tests, which has been warmly accepted by local farmers and customers.

Advantages: A mobile application to make the farmers task easier to vend their fresh products.

Disadvantages: Rates differences may vary for region for region.

This method in [9] states that Many farmers, particularly in developing nations, appear to have benefited from the arrival of mobile phone technology since it allows them to obtain relevant agricultural information in order to make more effective decisions. Many rural farmers run into information issues that appear to stem in agriculture or farming extension services that might be conveyed with the use of mobile devices.

Advantages: Farmers can access up to date information on market transactions, weather information and banking services

Disadvantage: Some of the data on mobile phones is complicated and so difficult to understand.

A. Software Requirements

Software requirement evaluation entails a thorough analysis, assessment, and outline of software programme requirements in order to fulfil actual and relevant standards that enable you to solve a problem. There are several steps involved in analyzing software requirements. The functional requirements include:

- Flutter and Dart Programming Language
- Visual Studio Code
- Firebase and Cloud Firestore Database
- Flutter_maps, cloud_firestore, flutter_svg etc (Packages)

B. Hardware Requirements

The hardware requirements are

- Windows 10 or higher Working Platform
- 64-bit CPU with processor intel i5 or more
- 4 GB RAM or more

III. PROPOSED SYSTEM

This sections describes about the architecture of proposed system and methodology.

A. Architecture

Fig 3 presents the proposed system model for the application developed.

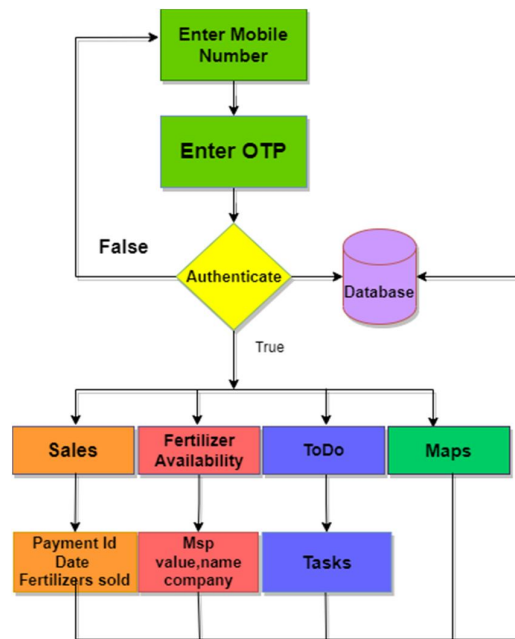


Fig 3. Proposed System Model of the App

The proposed system describes the whole process of what will be happening in the application from the start to the end in the way mentioned in [10]. At first, the user logs into application. Then, the user selects the desired option. Each option is explained in detail in the methodology.

B. Methodology

The different modules that are included in application are the login module which handles the authentication of application, fertilizers module helps user to view fertilizers stock details, sales module helps user to add and retrieve the sales details, Map module that displays location of all RBKs and finally the to-do module that helps user to add tasks to be done.

1) Login Module

In this Module we added an Authentication method which allows the user to sign in with the help of firebaseauth instance. If not signed in, then user is directed to Login Page in which he/she can sign in with the mobile number. The user is directed to the Home Page. When the user logs in successfully. There user can be select the desired option from the home screen.

2) Fertilizers Module

In this module we have 2 screens,

Display Screen: In which all the fertilizers are displayed with details fertilizer name, company name, MSP value and availability that stored in database. There is add button in bottom of screen where the user can add new fertilizers.

Adding Screen: This screen displays a form which takes fertilizers details as input from the user and adds the details to database on user clicks add.

3) Sales Module

In this Module we have two screens:

Sales Display Screen: This screen displays the sales details so far made by the respective RBK retrieved from the database. This contains the date, payment id and fertilizers sold.

Adding New Sales Screen: This page displays a form that allows the user to enter the new sales details taking date, payment id and all the fertilizers sold. On submitting the form details are adding to the database.

4) Map Module

In this module, we have a single screen of map locating all the RBKs.

Fig 4 presents a sample map showing the RBKs.



Fig 4. Map showing the RBKs

5) To-Do Module

In this module user can add the tasks to be done. This module has 2 screens. First screen displaying all the tasks to be done that are stored in the database. Second screen allows the user to add new tasks which contains task name, task description, date and time.

IV. RESULT AND ANALYSIS

This section details the results and the outputs of the system shown in figure 5-8.

V. CONCLUSION AND FUTURE WORK

The "RBK Fertilizers Monitoring System" app was designed and developed to meet the requirements identified during the requirements analysis phase, such as keeping track of fertilizer stock in their center, sales details including fertilizers sold, payment details, and task remainder set by the Agricultural Officer. There were several flaws in the old manual system. The current project was created in response to the aspirations expressed in the modern era. Anyone can visualize the effectiveness and efficiency of the generated project in real life. It comes in handy when it comes to computerizing or automating a personal information management system. This



Fig. 5. Fertilizers module



Fig. 6 Sales module

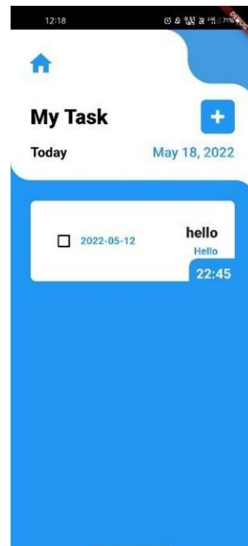


Fig. 7. ToDo module

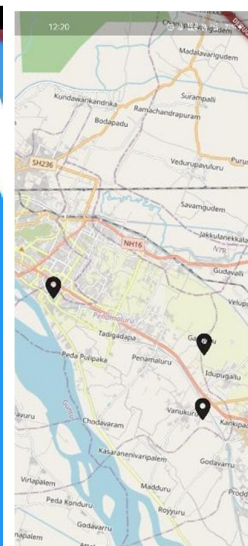


Fig. 8. Nearby RBKs module

application aids in the reduction of manual labor, which is a time-consuming and lengthy process. The project's long-term goal is to enhance the design, implementation, and documentation so that anyone can use it to improve their performance. We plan to make the app more dynamic. We plan to add a few modules in the future to improve the project, such as neighboring RBK locations and a fertilizer suggestion system.

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