



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Mobile Application for Farmers in Local Language

¹ Amit Agrawal, ² Achal Agrawal, ³ Rahul Arya, ⁴ Hardik Jain, ⁵ Jyoti Manoorkar

¹ Student, ² Student, ³ Student, ⁴ Student, ⁵ Professor

¹ Computer Science and Engineering,

¹ Dr. Vishwanath Karad MIT WPU, Pune, India

Abstract: To build a mobile application for farmers. An app containing functionalities like Registration, Login, weather forecast, crop advisory, etc. This app has been developed using flutter. This app is for the ease of the farmers in finding all necessary information. It consists of working of different platforms and their role in application development. In today's world ease of development is the thing all developers are looking for and flutter has produced the required platform to support development of applications for both Android and iOS. Developers are enforced to either construct the same application numerous times for various OS (operating systems) or accept a low-quality similar solution that trades native speed and accuracy for portability. Flutter is an open-source SDK for developing high-performance and more reliable mobile applications for operating systems like iOS and Android.

Keywords: Farmers, Flutter, Application, Android

1. INTRODUCTION

Our intent is positive, and we are working to solely benefit the farmers of Maharashtra through this application. To dispense it to most of the users, a mobile application needs to familiarize itself with two independent platforms which are Android and iOS. These two platforms share immense dissimilarities which often necessitate different skill sets for developing. For example, Java or Kotlin for Android and Object-C or Swift for iOS. Hence, developers and companies usually struggle to deal with the complex nature involved in developing cross-platform applications. Cross-platform frameworks that show resemblance to requirement of industrial development. Despite the ineffective precursors, Flutter which is backed up by Google, draw attention and developers find it easier to use as well. Flutter application can also run equally on both platforms, consequently decreasing the cost and complexity of application creation across iOS and Android. Flutter is fully built from scratch and around August 2017 only Google used it for commercial projects. We aim to cover most of the farmers in Maharashtra through this application. We are going for Marathi language to make it very easier to understand and use for the farmers.

2. METHODOLOGY

2.1 FUNCTIONALITIES

1. Registration – Logins Notification Crop advisory.
2. Products available at Local Agriculture Center: list of the products available with rate, quantity (it should be replaceable as per availability in the Local Agriculture Center)
3. Facilities at Local Agriculture Center: all facilities may be included as popup and feedback and demand from farmer is expected.
4. Notification: scrolling information on the app.
5. Crop advisory: time bound advisory to farmers.
6. Weather forecast: District, Taluka, village (Auto popup) – link with IMD or other website in local language (Marathi).
7. Market rate: popup all APMCs in Maharashtra and display the market rate of all products purchased by them.
8. Government schemes: link to government websites or availability of space for attachment of the pdf files of government schemes manually as per announcement by government.
9. Important Links: Agriculture Universities, ICAR and other research institutes, agriculture marketing, etc.
10. Feedback and query from farmers: farmer should be able to give his feedback or ask his query about the crop/animal with text enabled box.

2.2 APPLICATIONS

There are various applications of this project for farmers:

It is helpful in providing most of the information required by the farmers without the farmers having to struggle for it. It is helpful for the farmers to connect easily with Local Agriculture Center for all the commodities and information they need. It is quite easy for the farmers to navigate through this application. This application is in the native language of Maharashtra Farmers, so it is quite easy for them to understand everything. The processes of the application are self-explanatory, so little knowledge is required to understand anything. The weather forecast also helps the farmers know and understand what all crops to grow or warn them of any upcoming adverse weather conditions.

3. TOOLS AND TECHNOLOGIES

3.1 FLUTTER

Flutter is a cross-platform framework that targets developing high-performance mobile applications. Besides running on Android and iOS flutter applications also run on Fuschia. Flutter is exceptional because it is dependent on the device's OEM widgets rather than consuming web views. Flutter uses a high-performance rendering engine to render each view component using its own. This provides a chance to build applications that are as high-performance as native applications can be.

3.2 FIREBASE

3.2.1 Firebase helps developers' builds high-quality apps. It stores the data in JavaScript Object Notation (JSON) format which does not use query for inserting, updating, deleting, or adding data to it. It is the backend of a system that is used as a database for storing data [1].

3.2.2 Firebase Analytics It provides insight into app usage. It is a paid app measurement solution that also provides user engagement. This unique feature enables the application developer to understand how users are using the application.

3.2.3 Firebase Auth Firebase Auth supports social login provider like Facebook, Google GitHub, and Twitter. It is a service that can authenticate users using only client-side code and it is a paid service. It also includes a user management system whereby developers can enable user authentication.

3.2.4 Real-time Database Firebase provides services like a real-time database and backend. An API is provided to the application developer which allows application data to be synchronized across clients and stored on Firebase's cloud. The client libraries are provided by the company which enables integration with Android, IOS, and JavaScript applications.

3.2.5 Firebase Storage It facilitates easy and secure file transfer regardless of network quality for the Firebase apps. It is backed by Google Cloud Storage which is cost-effective object storage service.

3.3 GOOGLE'S API

3.3.1 Translation Api

Translation enables us to dynamically translate between languages using Google's pre-trained or custom machine learning models.

3.3.2 Maps Api

Help users discover the world with rich location data for over 100 million places. Enable them to find specific places using phone numbers, addresses, and real-time signals.

3.4 Weather Forecast

Weather plays a particularly significant role in agricultural production. It has a profound influence on crop growth, development, and yields (Weather and Climate Forecasts for Agriculture).

on the incidence of pests and diseases; on water needs; and on fertilizer requirements. "Weather forecast describes the anticipated meteorological conditions for a specified place (or area) and over period of time." Occurrences of erratic weather are beyond human control. Recent advances in climate modelling have resulted in increased ability to predict rainfall more accurately in many parts of the world with a lead time ranging from a few days to a few months, by using dynamical forecasts or statistical methods. It is possible, however, to adapt to or mitigate the effects of adverse weather if a forecast of the expected weather can be obtained well within time. "OpenWeatherMap" API is used in our android application to fetch the weather forecast. Also, a google maps autocomplete is used to fetch the location easily. Open Weather platform is a set of elegant and widely recognizable APIs. Powered by convolutional machine learning solutions, it can deliver all the weather information necessary for decision-making for any location on the globe.

3.4.1 Steps to use for weather forecast.

3.4.1.1 Click on weather on dashboard.

3.4.1.2 Enter the name of location.

3.4.1.3 Click on fetch button.

3.5 APMC Prices

The role of Agricultural Produce Marketing Committee (APMC) is pivotal in promoting the agricultural marketing. The policies, programmes, and actions of the government in its efforts to develop and modernize the marketing system for rural area are in three directions: Institutionalizing of agricultural marketing by facilitating the formation of Cooperative marketing societies (Role of APMCs in Agricultural Marketing in India- A Study); Regulation of markets for various agricultural products designed to minimize or eliminate unfair trade practices; and Direct involvement of the State in the marketing of certain agricultural products. Agricultural Markets in most parts of the country are established and regulated under the State APMC Acts. The whole geographical area in the State is divided and declared as a market area wherein the markets are managed by the Market Committees constituted by the State Governments. Once a particular area is declared a market area and falls under the 4 jurisdictions of a Market Committee, no person or agency is allowed freely to carry on wholesale marketing activities. The major functions of the APMC are grant, renew, refuse, suspend or cancel license; provide the necessary facilities; regulate and supervise the auctions; maintain and manage the markets; regulate the sales, promote, and organize grading and standardization of the agricultural produce and ware housing facilities in the market area. The APMC generates many benefits to the farmer community, therefore, farmers get a fair price; correct weighing for agricultural produces; maintenance of daily list of prices of commodities for the benefits of farmers and immediate payment after disposal of the produce. It is essential for a farmer to get the APMC market rates so in our application we have used the API provided by government of India which gives the real time apmc market rates.

3.6 Government Policies:

There are a lot of Government policies and plans that help farmers, and every year new policies are created. Leading organizations like Local Agriculture Center would have admin access to upload pdf files of this policies on the mobile application. Every farmer would be able to see these pdf files at ease and at one place.

3.7 Knowledge Hub

This section of application contains information on various agricultural practices, cultivation methods, verified YouTube videos which provides knowledge for different methods of cultivation.

4. RESULT

Below are some screenshots of the application functionalities and interfaces which gives a better insight to our application.

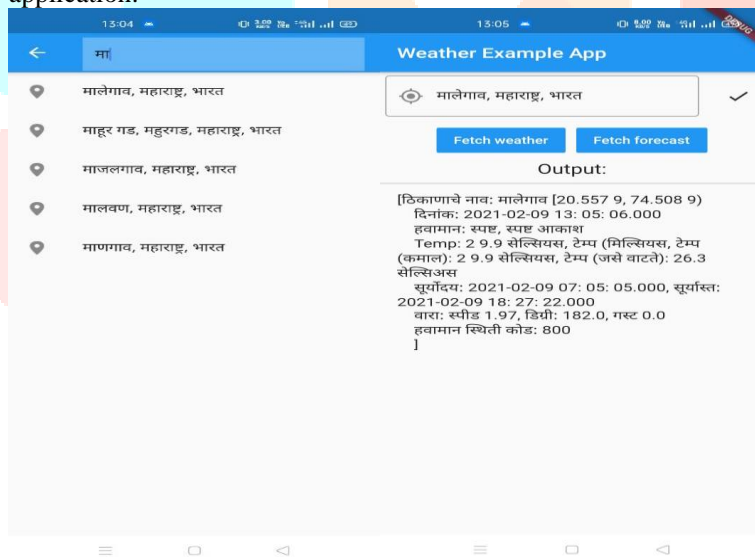


Figure 1: Autocomplete

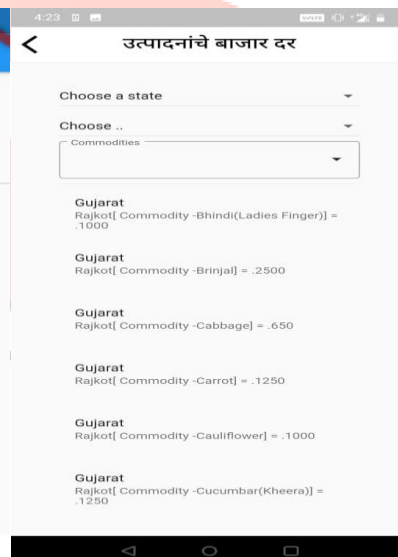


Figure 3: APMC Market Rates

Figure 2: Weather Forecast

5. CONCLUSION

To sum it all up we are making an application for farmers which will be extremely useful for them, having functionalities like weather report, crop details and many more. The farmers with the help of this application can move towards working smartly and can find out all the necessary information on our application along with finding out about products available and prices at the Local Agriculture Center. The application intends to spread awareness among farmers for everything related to innovative technologies and trends in farming. The future prospect of this project is to make it useful for all Indian farmers and even take it global if possible. This project intends to help farmers in a way that they will not have to go out of their way asking for help. Giving all information to farmers at one place is our main motive through this application.

REFERENCES

1. Chunnu Khawas, Pritam Shah, “Application of Firebase in Android App Development-A Study,” International Journal of Computer Applications, 2018.
2. Madhuram. M, Ashu Kumar, Pandyananian. M, “Cross Platform Development using Flutter,” International Journal of Engineering Science and Computing (IJESC),2019.
3. C. Software. (2019). What is flutter? here is everything you should know, [Online]. Available: <https://medium.com/@concisesoftware/what-is-flutter-here-is-everything-you-should-know-faed3836253f> (visited on 03/05/2020).
4. M. E. Joorabchi, A. Mesbah, and P. Krunchten, “Real challenges in mobile app development,” University of British Columbia, University of British Columbia, 2013, p.10. [Online]. Available:<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.724.2463&rep=rep1&type=pdf>.
5. Google. (2019). Google flutter sdk releases, [Online]. Available: <https://flutter.dev/docs/development/tools/sdk/releases>
6. G. Flutter. (2020). Google flutter animations, [Online]. Available: <https://flutter.dev/docs/development/ui/animations>.
7. Vilas Mohan Kadrolkar Tumkur University “Role of APMCs in Agricultural Marketing in India- A Study”
8. James William Hansen Columbia University “Weather and Climate Forecasts for Agriculture”

