

# “Smart Farming Using e-Krishi Application”

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## Abstract:

In agricultural sector, farmers in rural areas faced major problems because of illiteracy. They cannot take the advantage of internet to access the information related to farming. Ancient farmer used their advanced skills and techniques to yields production from various sources, but in today's scenario farmers are striving hard to cultivate the land and yield the production. The farmers today are not the same as yesterdays and the farmers present today may not be present tomorrow. Hence it is necessary to conserve the knowledge and skills in it.

According to UNESCO report, 64% Agriculture is believed to be the backbone of Indian economy. A backbone that has been bent since a long time now as farmers are suffering huge economic losses due to climate change. But the advent of Information and Communication Technology (ICT) to develop agriculture in India shows us promising ways to solve this problem. It is imperative to efficient solution for the farmers that can help them in cultivating crops which can give them a better yield and are suitable as per the present weather conditions. In this paper, we propose an android based app, e-krishi intended to address this issue. Further, it will act as a complete farmers friend helping them in taking strategic decision by suggesting them about various issues related with the cultivation of crops such as soils current nutrient status, irrigation needs, pest and disease identification, yield estimation etc. e-krishi is a cloud based application which provides both Hindi and English interfaces to 9 seek different queries in real time related with the crop cultivation. The unique features of e-krishi are its simple and user friendly interface.

**Keywords:** Agriculture ,ICT, Climate change, IMD (Indian Meteorological Department), Language, Android app

## Introduction

In India today, more people have access to mobiles than to running water. These new apps present an opportunity like no other to revolutionize life for farmer ,where techies are taking advantage of the high mobile penetration to help farmers improve their bottom lines.

One of the greatest problems farmers face today is the crop failure due to unsuitable weather conditions. Indian farmers are accustomed to grow their traditional crops only which many a times due to unfavorable weather conditions results in disappointment in terms of low or no yield. As a result, the rate of farmers' suicide in various region of India is also going up. Therefore, there is an urgent need of providing an easy and hassle free mechanism to farmers to decide which crops are the best suitable in their region according to the current weather conditions.

Information and Communication Technology (ICT) has led the way in opening new ways for disseminating the information to the masses at a very low cost. It has led to an immense increase in the number of mobile applications that assist farmers. *Farm-o-pedia* is one such Android application that is targeted for rural Gujarat.

## Materials and Methods:

### Software Platform :

1. Operating System: windows 7 and above
2. IDE: Android studio 3.0.1
3. java and xml
4. data store: Firebase system

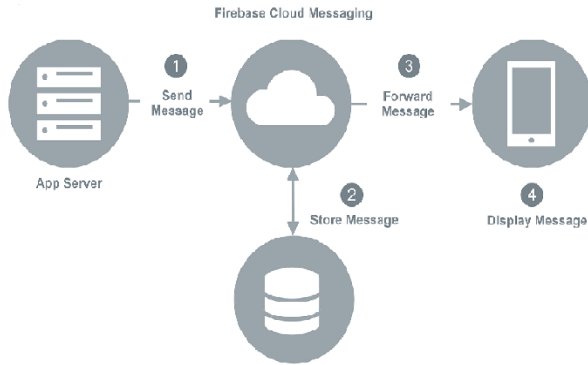
### Hardware Requirement:

Sr. No	Parameter	Minimum Requirement	Justification
1.	CPU Speed	2 GHz	hard disk 200 GB
2.	RAM	8 GB	intel i3

*e-krishi* is an android application developed using Android software development kit that works on an android mobile. It has three tier architecture. User Interface Layer is implemented using Java in Android software development kit. It is very interactive and easy for any novice user to understand. Application Layer is implemented using java, an open source server-side that is used to interact between user layer and database layer.

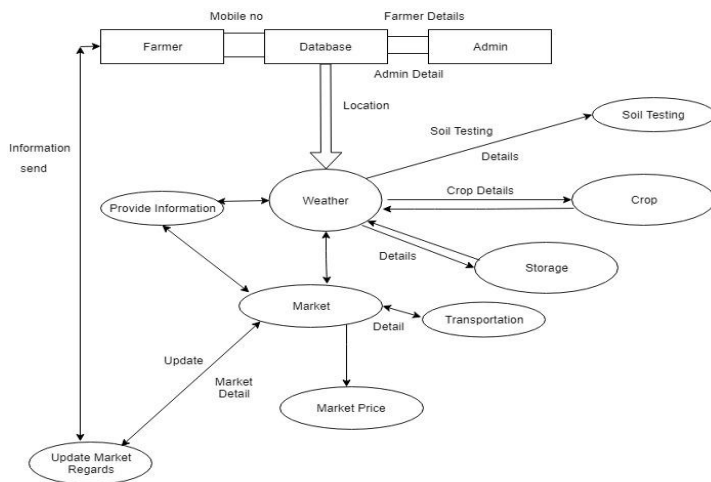
The developed app is multilingual and currently supports two languages, Hindi and English. It has an interactive user friendly menu designed to reduce effort of the user. Users are allowed to select the language of their region or interest.

**Data and Sources of Data:**



**Fig(1): User registration in database**

Database Layer is implemented using database for storing user data as well as data required for formulating accurate results.



**Fig(2): Dataflow Diagram**

**Objectives:**

- **Time and Cost Effective :** This Android Application is available to anybody and anywhere saves lot of time
- **Database Creation:** A database of the registered users will be created and this will help the farmer to fetch the details of particular crop as per requirements
- **Mobility:** Internet is available to everybody anywhere anytime here, this makes the site highly mobile.
- **Informative:** The site has all the necessary details about farmers and crops

**Discussion:**

The main objective of e-krishi project is to suggest crops to the farmers according to their current location and regional weather conditions. It helps farmers in major aspects of farming like knowing about their soil nutrient status,disease& control identification, yield and storage.The first objective of suggesting suitable crops would be successfully developed for Maharashtra State . e-krishi is an app that integrates various aspects of farming such as crop selection-control disease problem ,yield storage it & Transportation can be of great utility to the farmer as presently there is no single platform where all the problems of the farmers are addressed in the real-time involvement of a middleman format. In future, remote sensing of the soil nutrition, disease detection sensor which is a major challenge, will be integrated with the app.

**Conclusions:**

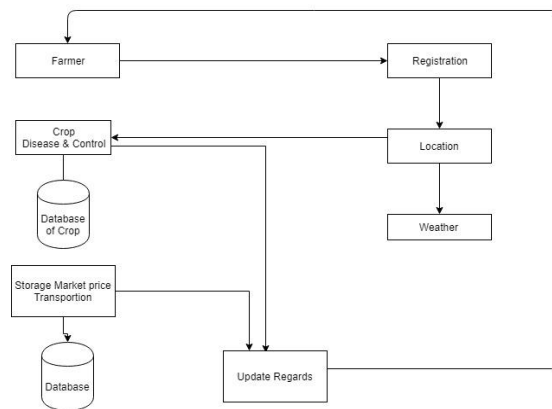
e-krishi is an app that integrates various aspects of farming such as crop selection,disease problem and yield estimation.This expert system or interface will need to be researched further for implementation. Hence future of this task lies in developing the actual system schema and adding extra new functionalities which may be implementation specific. In future, remote sensing of the soil nutrition, which is a major challenge, will be integrated with the app. We also aim to provide support formore Indian languages for the widespread out reach and utilization of the app.In future, the scope of this system or interface can be increased by adding extra various functionalities.

**Figures:**

Proposed System:

- 1.Crops : Disease’s & Prevention
2. Soil Testing
3. Market Price:Yield & Storage
- 4.Transportation

This process is depicted in the Architecture Diagram given below,



**Fig(3):Architecture diagram**

- Farmer can register to application to fetch information available in app.
- They can select crop from application and there disease and prevention tips.
- User can check out the market price of there nearby location and by using transportation they can transport-store there yield and get profit by solding.

**Results:**

**Module1- Crops:**

The suitable crops for cultivation are suggested by the app The data is fetched from a central database stored at the server. Selection of crops according to location and identify diseases & there prevention.

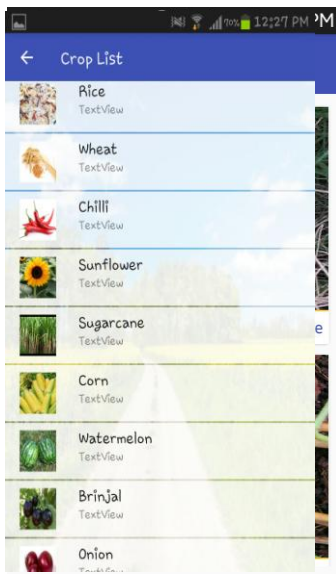


Fig: 4

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**Module2:Soil Testing**

For soil testing according to location farmer can inform to soil testing laboratory, then they test their soil samples by using by post and by hand method.System handler can add soil labs form home .

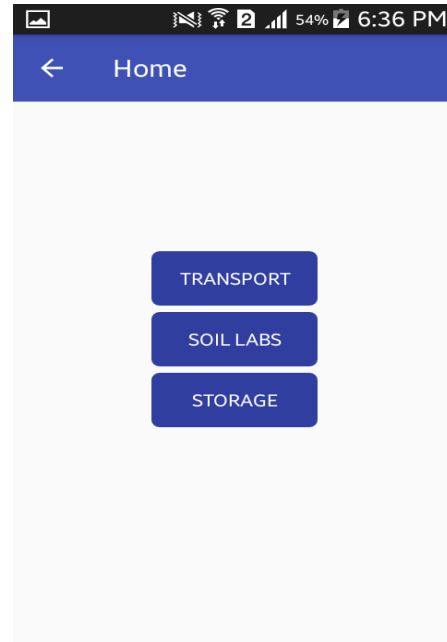


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**Module3: Market price**

**Yield and storage**

Farmer can check transportation services present in nearby location and register and book for storage the yield.

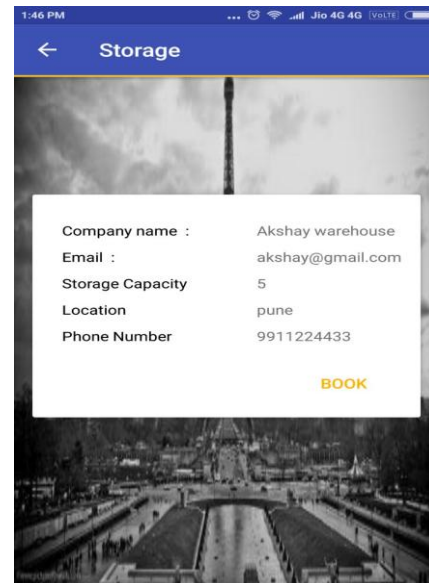


Fig: 7

Market price can detect the farmer according to location.

Market Price	
Min Price	1000 rs/quintal
Max Price	1500 rs/quintal
Arrival	5 tonne
<b>Pune</b>	
Min Price	1500 rs/quintal
Max Price	2000 rs/quintal
Arrival	6 tonne
<b>Solapur</b>	
Min Price	1000 rs/quintal
Max Price	1500 rs/quintal
Arrival	5 tonne
<b>Satara</b>	
Min Price	1500 rs/quintal
Max Price	2000 rs/quintal
Arrival	6 tonne
<b>Kolhapur</b>	
Min Price	1500 rs/quintal
Max Price	2000 rs/quintal
Arrival	6 tonne
<b>Bidar</b>	
Min Price	1000 rs/quintal
Max Price	1500 rs/quintal

Fig: 8

### Module 4: Transportation

According to capacity of vehicle service farmer can book traveller to transport the crop in market.

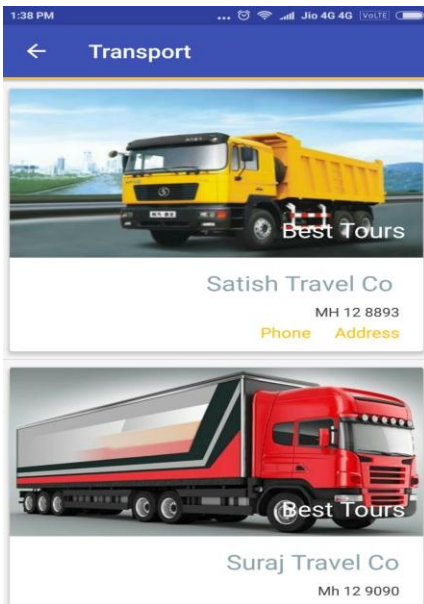


Fig: 9

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### References:

- [1] <https://apps.mgov.gov.in/descp.do?appid=587>
- [2] <http://mkisan.gov.in/aboutmkisan.aspx>
- [3] <https://play.google.com/store/apps/details?id=com.rml>.
- [4] <http://imdagrmet.gov.in/>
- [5] K.S. Gajbhiye1 and C. Mandal , “Agro-Ecological Zones, their Soil Resource and Cropping Systems”, Status of Farm Mechanization in India, January, 2000, pp. 22-30.
- [6]<http://www.hindustantimes.com/punjab/badal-launches-kisansuvidha-mobile-app>
- [7] <http://www.investopedia.com/terms/c/crop-yield.asp>