

## Kisan Seeva

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**Abstract** - The world population is rapidly increasing and is expected to reach 8.6 billion by 2030. As a result, food production and consumption will increase, leading to a greater threat to food security from crop diseases that can damage agricultural products. Unfortunately, in several parts of India, inadequate infrastructure makes it challenging to identify crop-damaging diseases quickly. Farmers now grow a diverse array of crops and often aim to expand the variety they grow, making it difficult to foresee crop illnesses at an early stage. This "Experimental farming" mentality often results in significant losses, making it more expensive for farmers to learn from past mistakes.

To address these challenges, an electronic expert system, in the form of an android app, is proposed. This app will enable farmers to make wise decisions and enhance their farming operations without incurring significant losses. The system employs an innovative method of object detection to identify plant diseases, significantly improving the speed and accuracy of disease detection on leaves. Convolutional neural network (CNN) models are utilized to detect diseases, which are more accurate than other models available in the market. With this approach, the system will identify whether crops are infected or not, and if they are, the user will be informed, and appropriate action can be taken to address the sick crop.

The app's approach allows farmers to take crop photographs and analyze the presence or absence of illnesses quickly, providing a workable solution to the lack of adequate infrastructure. It also caters to farmers' needs for a diverse array of crops while minimizing the risk of significant losses. The suggested system offers a solution to the issue of food security by providing farmers with the tools to detect and address crop diseases at an early stage, thus improving food production and consumption.

**Key Words:** Farmer, Crop, Leaf Disease, Renting Farming Equipment, Mandi Price, Disease Prediction

### 1. INTRODUCTION

After conducting a survey in some villages and cities, we found that over 70% of farmers are interested in trying new crops instead of their traditional ones. However, due to a lack of knowledge and experience, many farmers struggle to grow these new crops, and they often suffer from diseases, nutrient

deficiencies, and other factors that harm their crops. Many farmers in the area rely on experience rather than proper understanding, and they make decisions based on visual inspections of their plants. However, this method requires ongoing evaluation of expertise, which can be too expensive for large farms.

In addition, some farmers have to travel long distances to consult with agricultural officers, which can be costly and time-consuming. To address these challenges, automatic diagnosis of plant diseases from the symptoms that occur on the plant leaves is an interesting study area that could prove advantageous in monitoring vast fields of crops. Machine vision makes this possible, allowing for image-based process control, robot navigation, and autonomous inspection.

Diagnosing plant diseases by visually inspecting the symptoms on plant leaves is a complex process, even for seasoned agronomists and plant pathologists. This complexity is due to the vast number of cultivated plants and their Phyto pathological issues. Therefore, the development of an automated computational system for identifying and diagnosing plant diseases would greatly benefit agronomists who are requested to make these diagnoses.

For farmers in regions without the necessary infrastructure for agronomic and Phyto pathological advice, a simple-to-use mobile application could prove to be a useful tool. However, for this system to be effective, it must be able to detect and diagnose certain diseases in real-world settings and be compatible with a suitable mobile application

#### 1.1 Problem Statement

To increase production in their fields, farmers should regularly inspect their crops for pests and diseases. However, many farmers struggle to identify infections in a timely manner and even seeking help from farming professionals can result in significant delays. To address this challenge, we are creating an Android application that uses plant photographs to help farmers detect diseases. Furthermore, the app will provide information on the prices of various crops at nearby markets through an API, offer rental options for farming equipment, and support farmers in multiple regions with its multilingual features.



- Implement user authentication using phone number and OTP.
  - Develop a simple UI that is intuitive and easy to use.
  - Test the application to ensure it meets the defined requirements.
5. Deployment
- Release the application to the Google Play Store
  - Monitor the application's performance and user feedback.
  - Update the application with bug fixes and new features as necessary.
6. Maintenance and Support
- Provide ongoing maintenance and support for the application.
  - Address any issues or bugs that arise.
  - Continuously improve the application based on user feedback and changing requirements.

### 3. SYSTEM IMPLEMENTATION

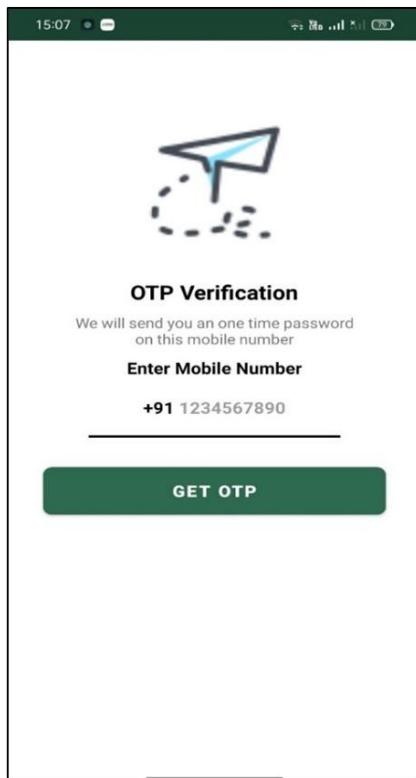


Figure 2 Login

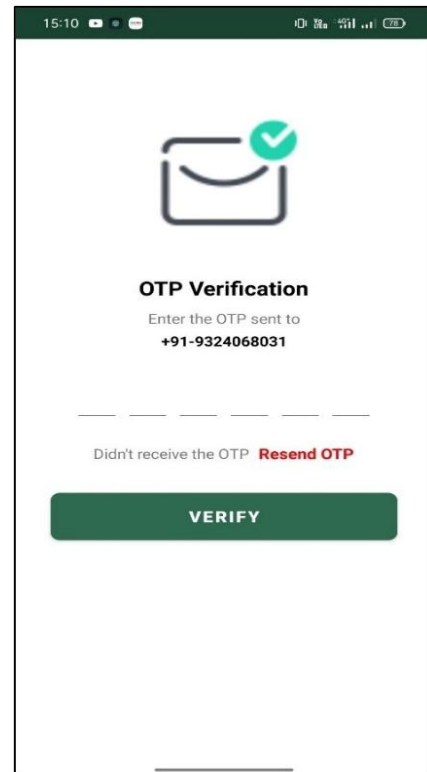


Figure 3 OTP Verification

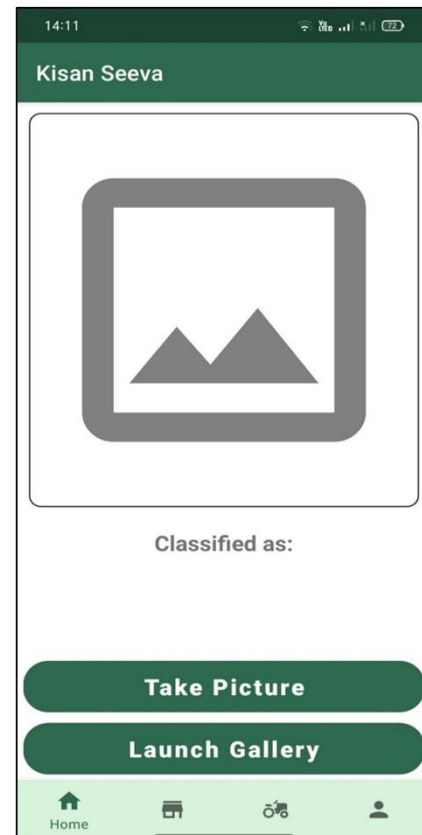


Figure 4 Home Page

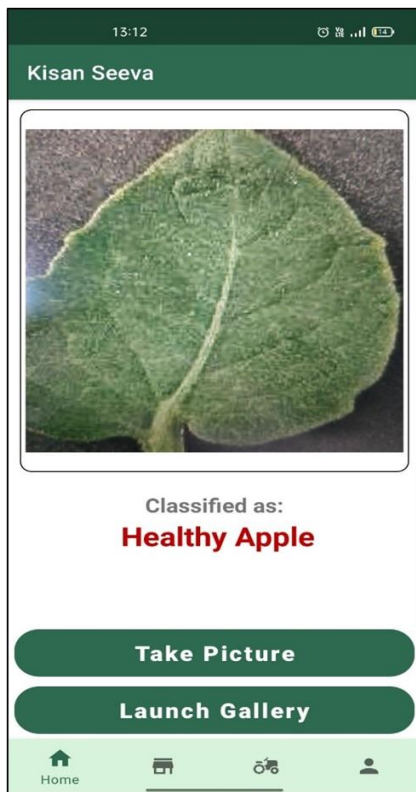


Figure 5 Disease Detection



Figure 7 Take on Rent

Crop	Price	Location	Date
Millets	3400/qq	Narayanpur,Chattisgarh	21/04/2023
Cauliflower	1100/qq	Damnagar,Gujarat	21/04/2023
Ginger(Green)	2750/qq	Damnagar,Gujarat	21/04/2023
Green Chilli	1850/qq	Damnagar,Gujarat	21/04/2023
Guar	1850/qq	Damnagar,Gujarat	21/04/2023
Banana	1600/qq	FerozpurZirkha(Nagina),Haryana	21/04/2023
Water Melon	900/qq	FerozpurZirkha(Nagina),Haryana	21/04/2023
Amaranthus	3200/qq	Pampady,Kerala	21/04/2023
Ginger(Green)	12600/qq	Pampady,Kerala	21/04/2023
Indian Beans (Seam)	8500/qq		

Figure 6 Mandi Price

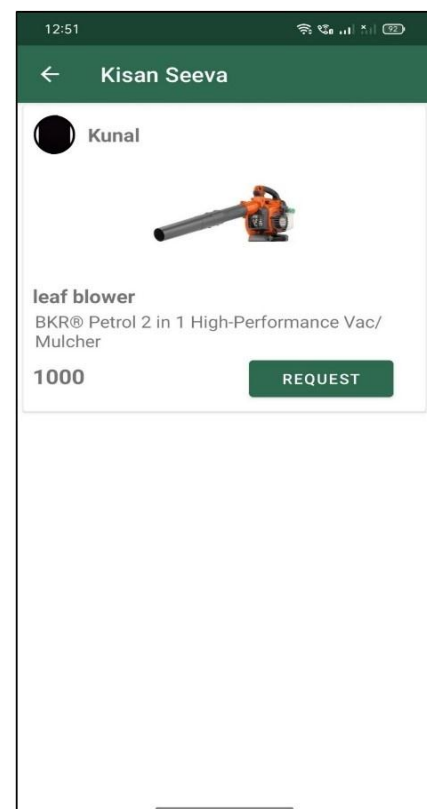


Figure 8 Product List

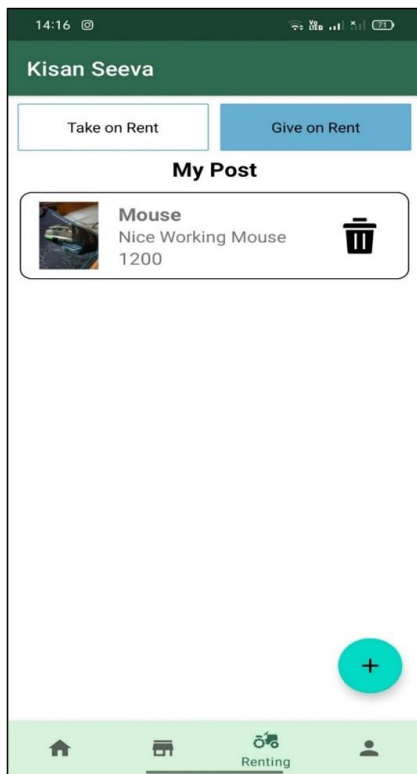


Figure 9 Give on Rent

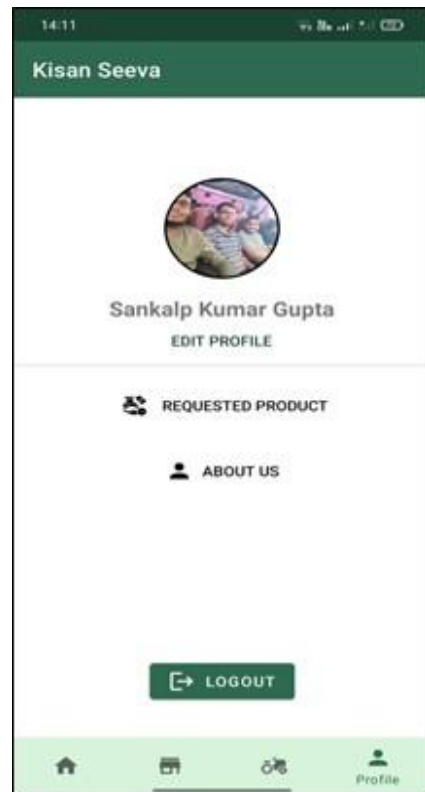


Figure 11 Profile

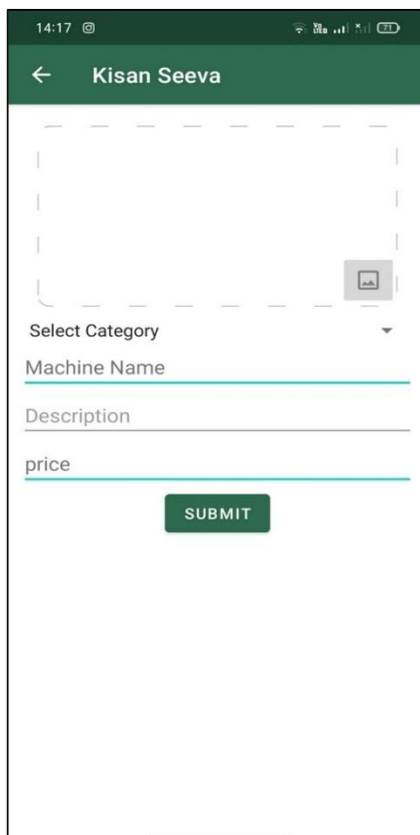


Figure 10 Add Product

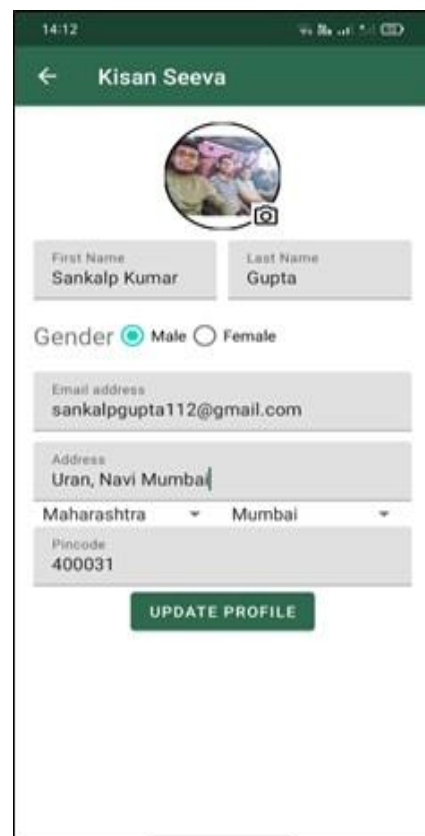


Figure 12 Edit Profile

#### 4. Conclusion

We have successfully developed and implemented an intelligent crop recommendation system in this study that Indian farmers can utilize right away. The farmers would benefit from this system's help in making educated decisions about the types of diseases affecting their crops and possible treatments. Mandi Price, the ability to rent out equipment. Utilizing the methods outlined previously, the building of an electronic expert system for the identification of plant diseases affecting the leaves is accomplished with the inclusion of the other services outlined above.

#### 5. Future Scope

- Image authenticity check: In the future, the project can be enhanced to include an image authenticity check feature. This feature would allow the model to learn to verify whether an image is genuine or has been tampered with.
- Community support: Another future update could be the inclusion of a community support feature. This feature would allow users to connect with other farmers, exchange ideas and get support from each other.
- Agriculture-related news: The app can be updated to include a news section that covers the latest trends and updates in the agriculture industry. Users can get access to news articles related to farming, agriculture policies, and other relevant information.
- Bank documents for loans: The project can also include a feature that provides users with access to bank documents required for loans. This feature would help farmers to easily apply for loans and get the necessary documents without any hassle.
- Multilingual support: The app can be updated to support multiple languages. This feature would help farmers from different regions of the country to use the app in their preferred language, making it more accessible to them.

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