PROJECT REPORT

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TITLE

ADVANCE AGRO: A TECHNOLOGY FOR AGRICULTURAL ADVANCEMENT

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Advance Agro: A Harnessing Technology for Agricultural Advancement

Introduction

In the age of digital transformation, agriculture stands poised at the intersection of tradition and innovation. With the global population swelling and climate change altering traditional farming landscapes, the need for smart, efficient and sustainable agricultural practices has never been more pressing. In response to these challenges, the agricultural sector is increasingly turning to technology for solutions that not only boost productivity but also ensure environmental stewardship and economic viability.

ADVANCE AGRO is a cutting-edge agricultural app designed to revolutionize the way farmers engage with their land, crops and livestock. Born from a passion for harnessing the power of technology to empower farmers, our app represents a holistic approach to modern agriculture, seamlessly integrating digital tools with age-old wisdom.

At its core, **ADVANCE AGRO** is more than just a digital tool it's a comprehensive ecosystem tailored to the needs of today's farmers. Whether a farmer is a small-scale producer tending to a family farm or a commercial enterprise managing vast acreage our app is a trusted companion, offering a suite of features designed to streamline every aspect of agricultural management.

From crop planning and management to market insights, weather forecasting and community networking **ADVANCE AGRO** is a one-stop solution for all things agriculture. Our intuitive interface backed by cutting-edge technology and expert knowledge, empowers farmers to make informed decisions, optimize resource allocation and mitigate risks ultimately maximizing yields and profitability.

But ADVANCE AGRO is more than just a tool , it's a community. Together, farmers are not just cultivating crops; they are cultivating a sustainable future for agriculture one innovation at a time. This app will modernize the landscape of farming. Whether a farmer is a seasoned agricultural veteran or a newcomer with a green thumb, ADVANCE AGRO is a partner in growth, resilience and prosperity.

Objective

- To provide NGO workers with resources to offer personalized, real-time agricultural guidance to illiterate farmers, improving farming practices and productivity.
- To implement accurate yield forecasting to help farmers and NGO workers plan effectively, reduce risks and maximize crop yields.
- To develop an intuitive and easy-to-navigate interface tailored for NGO workers, ensuring that even those with limited technical skills can utilize the app efficiently.
- To contribute the government's efforts in improving agriculture in Bangladesh, ultimately benefiting farmers and the broader agricultural ecosystem.
- To develop an interactive model inside our app so that the NGO workers could get accurate results & analysis of a specific query related to crop fields & crop conditions.
- To provide a time-to-time update of any upcoming events such as any natural disaster predictions or any other information related to harvesting time of specific crops.

Background Study

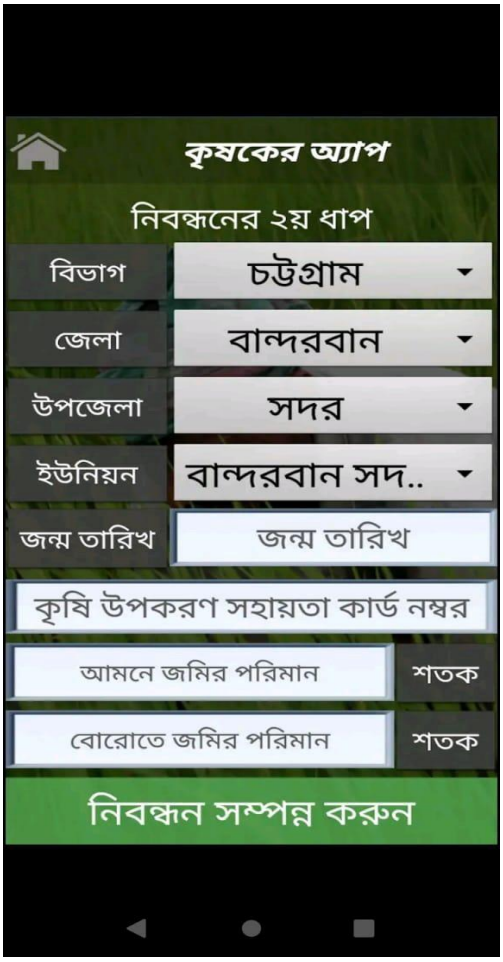
Agriculture is the primary source of income for most of the families in this village. Many farmers in a village need help getting good quality seeds and machinery to increase their yields but waiting for the result. They need to gain modern farming techniques and have limited knowledge of traditional methods. And they have to acquire good seed or seed production experience.

As a result, crop yields are declining and many families struggle to make ends meet. Lack of investment in the agricultural sector makes it difficult for farmers to compete with larger, more established farms in nearby cities because agriculture is being modernized in the farms and improved agricultural implements and machinery they use. which is difficult for marginal farmers to obtain.
Occasional droughts and other natural disasters make farming more challenging. Lack of infrastructure makes it difficult for farmers to recover from this shock. The number of workers in villages is significantly less.

A variety of agricultural apps and platforms that offer similar functionalities to "Advance Agro " catering to the diverse needs of farmers and agricultural professionals in managing their operations efficiently and sustainably. Some are stated below:

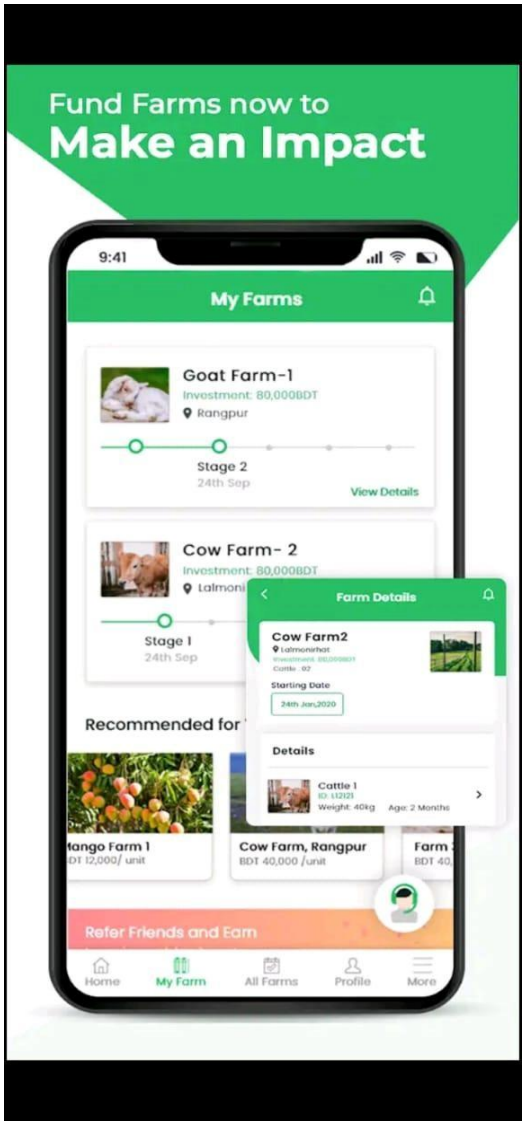
a. Krishoker App

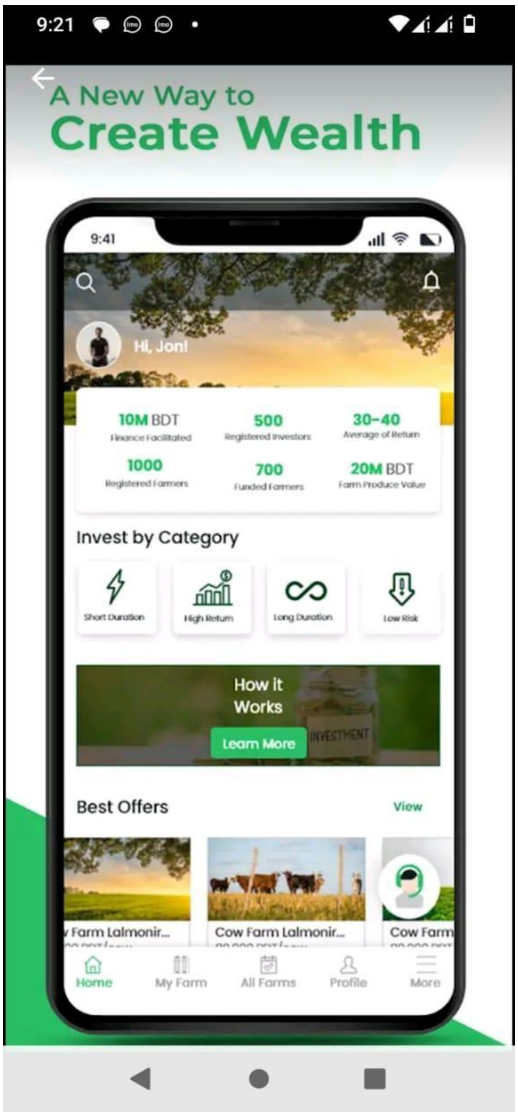
- Krishoker App is an agricultural management platform where farmers can apply for selling paddy from home.
- It offers farmers a fair price of the crops cultivated.
- https://play.google.com/store/apps/details?id=bd.gov.dgfood.fps



b. iFarmer

- iFarmer is a farm management app that helps the owner of a particular farm streamline operations, manage field activities and optimize inputs.
- It offers tools for financial tracking and total investment.
- https://play.google.com/store/apps/details?id=asia.ifarmer.investor





c. Khamari

- The Khamari app, launched in Bangladesh by the Ministry of Agriculture, is designed to help farmers reduce fertilizer costs and increase crop yields. It offers features for data visualization, variable rate seeding and nitrogen monitoring, as well as integration with farm machinery.
- The app offers guidance on crop zoning, crop diversification and farming technologies. It helps farmers manage their crops more effectively by providing data on land fertility, weather conditions, pest management and irrigation .
- https://play.google.com/store/apps/details?id=barc.crop.khamari2

Analysis the Features of Existing App

The existing agricultural apps provide a comprehensive suite of features and functionalities to address the diverse needs of farmers and agricultural professionals, enabling them to manage their operations more efficiently, sustainably and profitably. Overall analysis is stated below:

a. Comprehensive Farm Management

All the apps offer a wide range of features for managing various aspects of farm operations, including field mapping, crop monitoring, inventory management, financial tracking and equipment management.

b. Decision Support Tools

Decision support tools such as market analysis and variable rate applications help farmers make informed decisions to optimize productivity and profitability.

c. Educational Resource

Access to educational resources such as articles, videos and tutorials on best practices, new technologies and industry trends.

d. Integration with Technology

Integration with emerging technologies such as satellite imagery, IoT sensors and machine learning algorithms enhances the apps' capabilities for remote monitoring, precision agriculture and predictive analytics.

e. Crop Rotation and Planning

Tools for planning crop rotations, managing crop schedules and optimizing land use. This helps improve soil health, manage pests and diseases and increase overall yield.

f. Financial Management

Tools for budgeting, expense tracking and financial analysis. This may include features like income and expense tracking, profit and loss analysis.

g. Customization and Localization

Many apps offer customization options to tailor the user experience to individual preferences and local conditions, supporting a diverse range of crops, regions and farming practices.

Application Features

To make ADVANCE AGRO stand out in the market, consider incorporating some unique features that address specific pain points or offer innovative solutions. Here are some ideas for unique features:

Objective	Features	Description
a. To provide NGO workers with resources to offer personalized, real-time agricultural guidance to illiterate farmers, improving farming practices and productivity.	Crop Disease and Solutions	NGO workers provides specific crop disease solution towards farmers
	Fish Cultivation; Different types of crop cultivation	The NGO workers can also provide information on ideal conditions of specific fish cultivation along with different crop culture process as well.
	NGO discussion Forum	The NGO volunteers from different areas can also communicate & discuss in this forum about the current agriculture sector position, contribution towards economy and so on.
b. To implement accurate yield forecasting to help farmers and NGO workers plan effectively, reduce risks, and maximize crop yields.	Yield Forecasting live location weather forecast	It helps to farm accordingly basing on weather forecast. Our app can also forecast weather based on the user's current location he is staying on.

c. To develop an intuitive and easy-to-navigate interface tailored for NGO workers, ensuring that even those with limited technical skills can utilize the app efficiently.	User-Friendly Dashboard	Our app consists a user-friendly interfaces
d. To contribute the government's efforts in improving agriculture in Bangladesh, ultimately benefiting farmers and the broader agricultural ecosystem.	Notifications & Up-to-date news on agriculture	Farmers will be much more knowledgeable about government initiatives
e. To develop an interactive model inside our app so that the NGO workers could get accurate results & analysis of a specific query related to crop fields & crop conditions.	Chatbot and Feedback Submission	NGO workers will able to submit feedback about the current state of the application to the development team.
f. To provide a update of the information related to harvesting time of specific crops.	Crop Weather Calendar	Crop calendar will help the framers to cultivate crops in a professional way.

Methodology:

Developing an ADVANCE AGRO involves multiple stages, from initial planning and design to development, testing, and deployment. We will try to follow the agile methodology during our software development. Here's a general timeline outlining the key phases and estimated durations:

a. Planning & Analysis(1-2 weeks)

- At first, we will try to gather the requirements from the farmers & NGO field workers by doing survey, interviewing the NGO workers.
- We will have two different types of requirements:
    1. Functional requirements
    2. Non-functional requirements (such as, user authentication, avoiding data breach etc.)

b. Planning (1 week)

- We will create a detailed project plan, including timelines, resource allocation, and milestones.
- We will define the app's objectives, target audience, and key features based on market research and user feedback.

c. Design Phase (3-4 weeks)

- Develop wireframes, mockups, and user interface designs to visualize the app's layout, navigation, and branding.
- Iterate on design concepts based on feedback from stakeholders and usability testing.

d. Development Phase (5 weeks)

- Implement the app's functionality, integrating backend systems, databases, APIs, and third-party services as needed.
- Follow an agile development approach, breaking down tasks into sprints and regularly reviewing progress with the development team.
- We will divide the development phase into 2 parts:
    1. Frontend development (2 weeks)
    2. Backend development (3 weeks)

e. Testing (2-3 days)

- Conduct thorough testing to identify and resolve bugs, usability issues, and performance bottlenecks.
- Perform functional testing, compatibility testing, security testing, and user acceptance testing to ensure the app meets quality standards.

f. Maintenance(3-4 days)

- We will try to maintain the software & will keep upgraded according to the changing environmental perspectives.

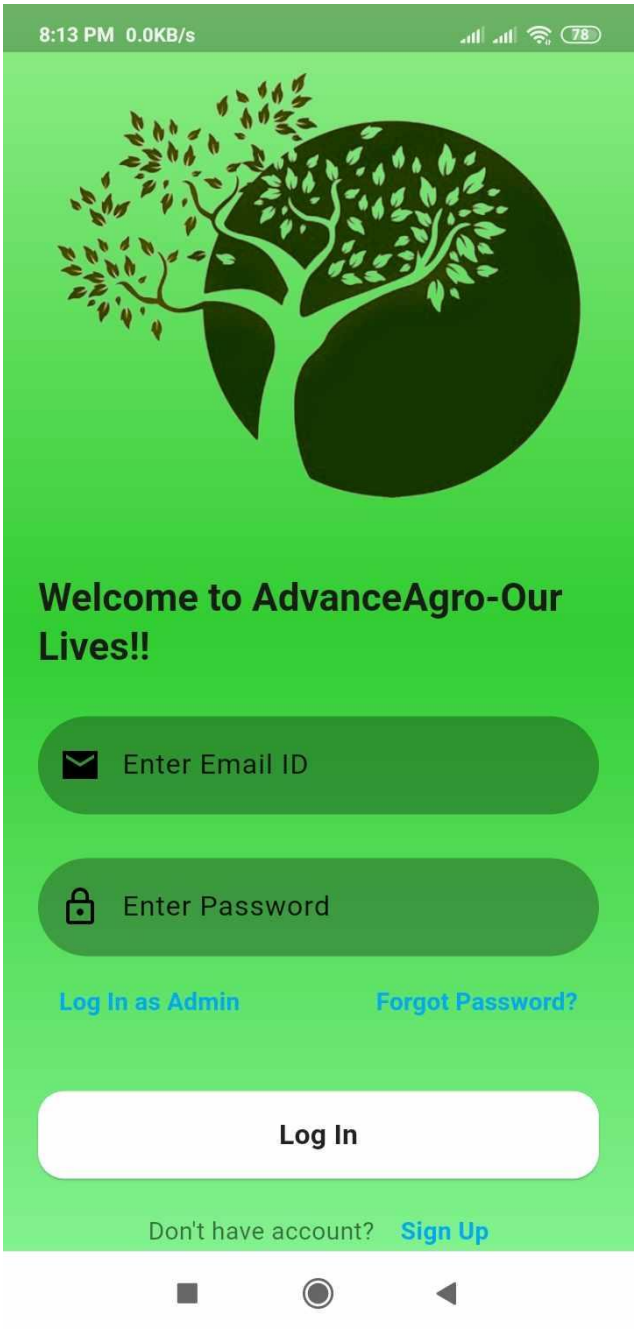
g. Deployment and Launch (2 weeks)

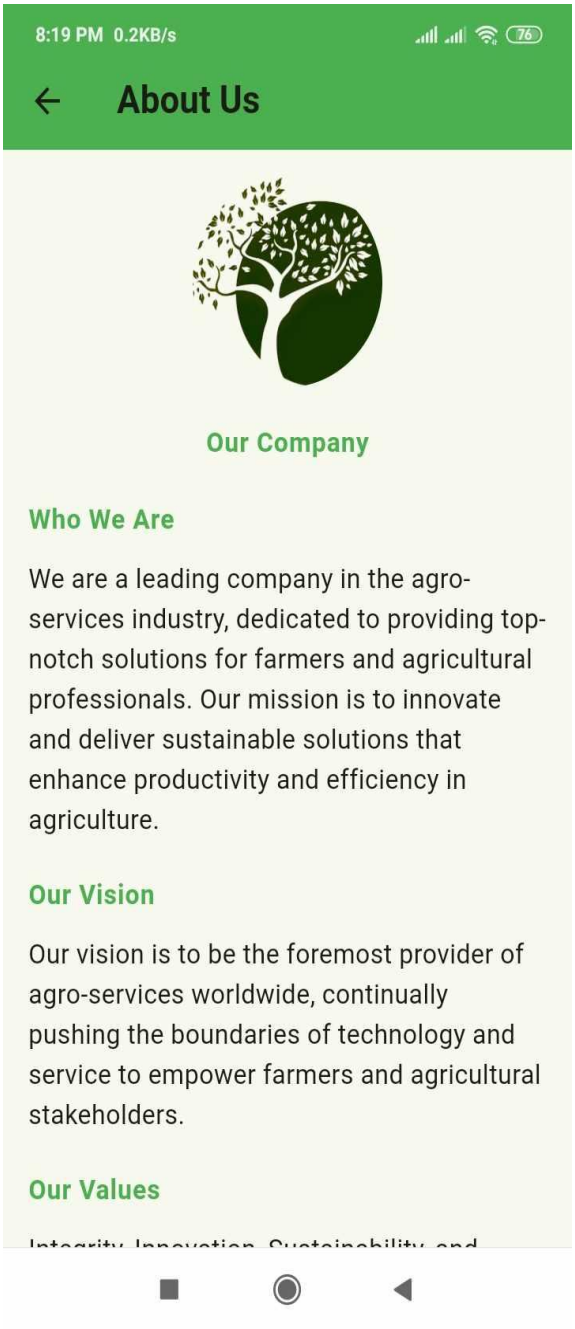
- Prepare for app deployment to app stores (e.g., Apple App Store, Google Play Store) and web hosting platforms.
- Create marketing materials, such as app descriptions, screenshots, and promotional videos, to attract users.
- Coordinate a launch strategy, including press releases, social media campaigns, and outreach to target users and industry influencers.

h. Post-launch Support and Updates (Ongoing)

- Monitor user feedback, app performance, and analytics to identify areas for improvement and optimization.
- Release regular updates and enhancements based on user feedback, technological advancements, and market trends.
- Provide ongoing customer support and maintenance to address user inquiries, technical issues, and feature requests.

. **Prototypical UI Design**



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88%
2.7 km/h
Mon, Sep 16, 09:00 PM
Clouds
Temp
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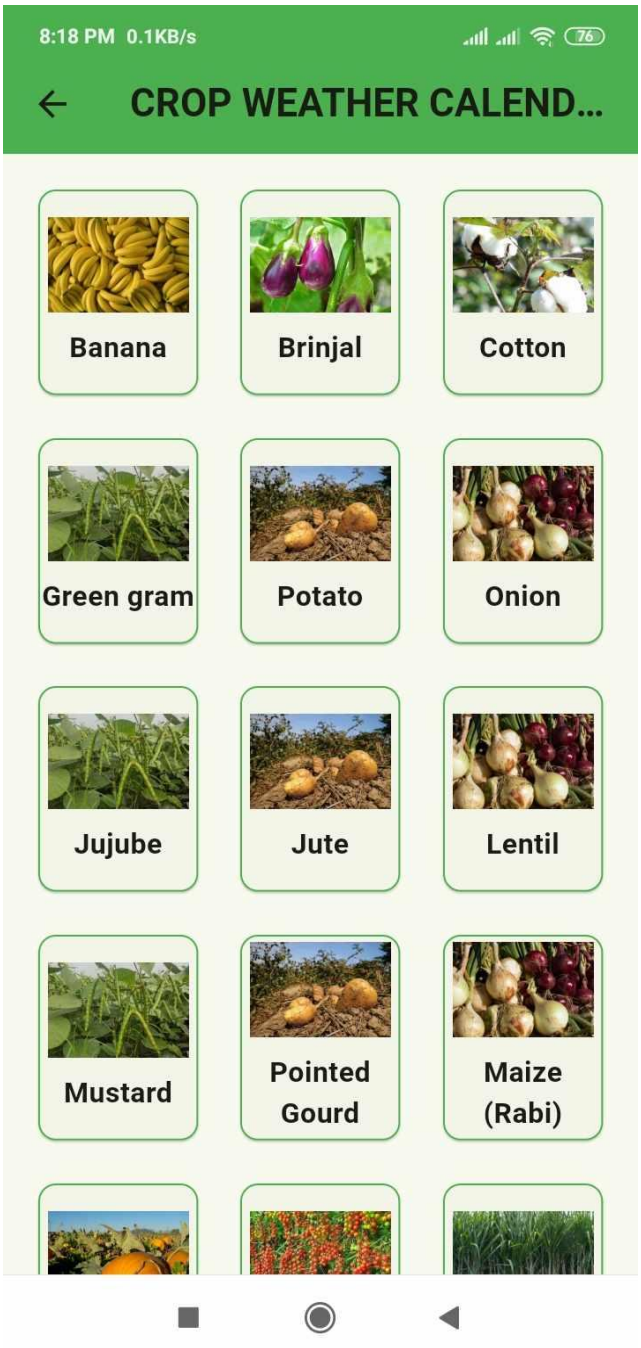
Humidity
91%
Wind
2.28 km/h
Tue, Sep 17, 12:00 AM
Clouds
Temp
Humidity
Wind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CROP WEATHER CALEND...
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Green gram
Potato
Onion
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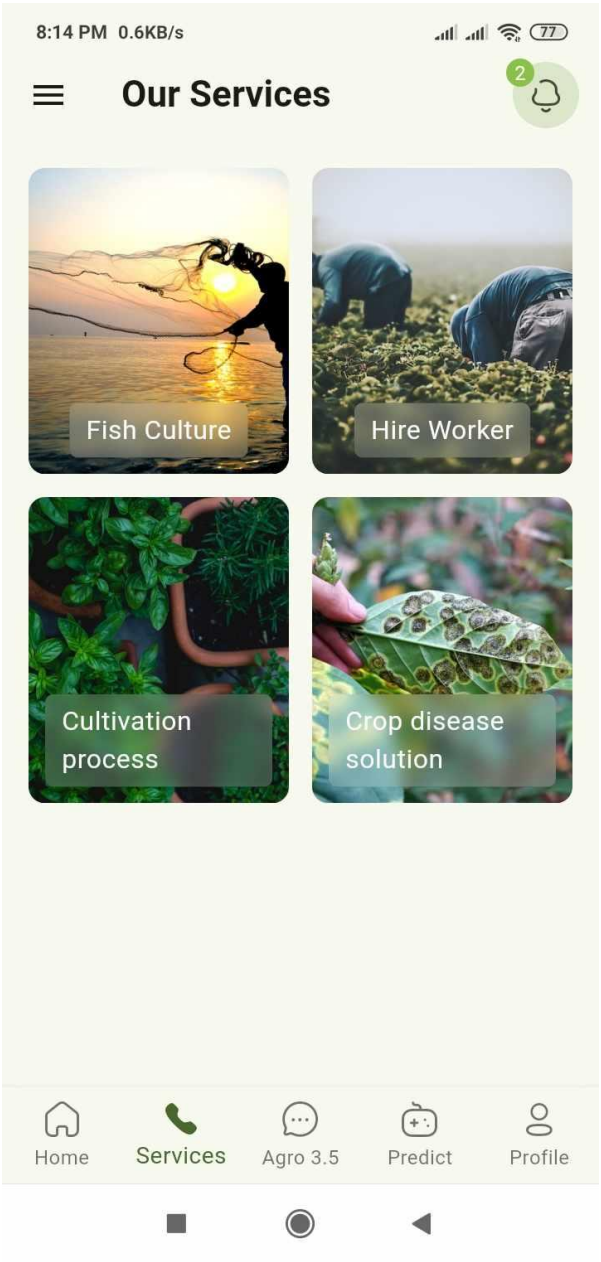
Lentil
Mustard
Pointed Gourd
Maize (Rabi)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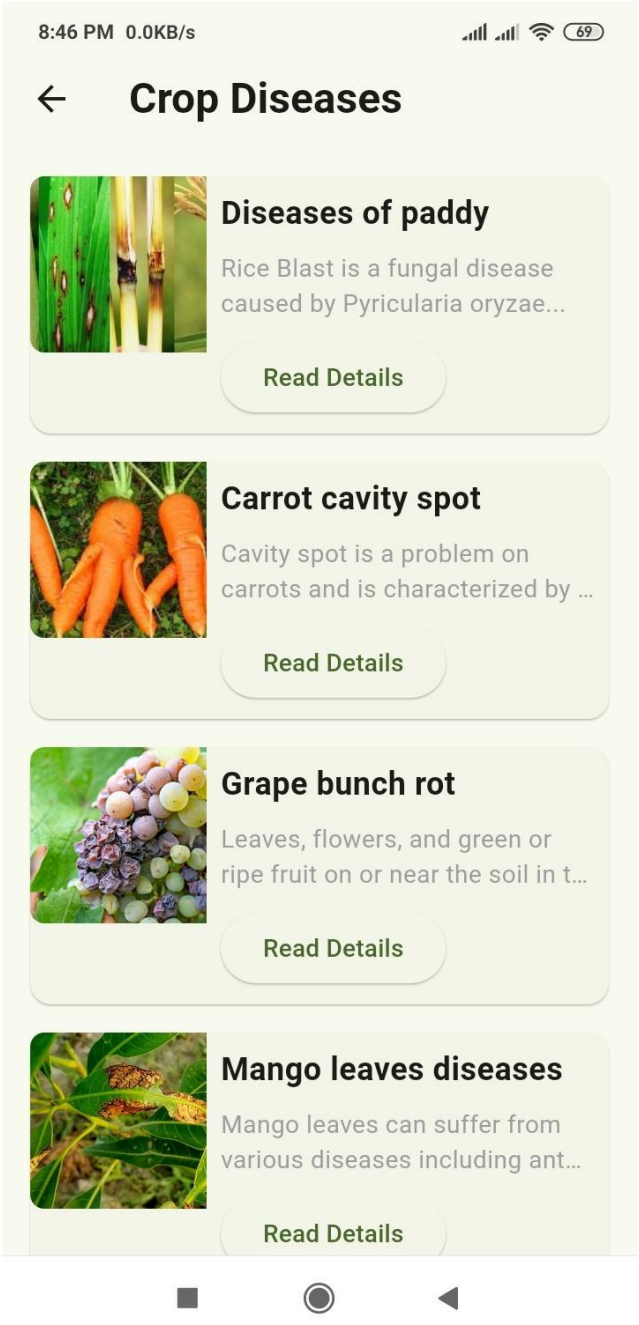
Our Services
Fish Culture
Hire Worker
Cultivation process
Crop disease solution
Home
Services
Agro 3.5
Predict
Profile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Crop Diseases
Diseases of paddy
Rice Blast is a fungal disease caused by Pyricularia oryzae...
Read Details
Carrot cavity spot
Cavity spot is a problem on carrots and is characterized by ...
Read Details
Grape bunch rot
Leaves, flowers, and green or ripe fruit on or near the soil in t...
Read Details
Mango leaves diseases
Mango leaves can suffer from various diseases including ant...
Read Details

8. Timeline

Task/week	Time Span													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Requirement analysis														
Planning														
Design														
Frontend Development														
Backend Development														
Integration and Testing														
Maintenance														
Deployment														
Final Testing and Launch														

References

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