**Project Charter Plan**

**Project Name: AgriKare Mobile App**

**AgriKare Inc.**

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# Executive Summary:

Farmers frequently face difficulties in effectively recognizing crops and managing crop diseases, particularly in different agricultural areas. These difficulties can result in yield losses and make informed decision-making difficult. Furthermore, selecting proper pesticides is a hard undertaking, and farmers frequently encounter isolation and limited opportunities for knowledge exchange. To address these issues, this Project aims to develop a user-friendly mobile application. The app uses machine learning methods for disease diagnosis, convolutional neural networks (CNN) for image classification to precisely identify crops, and pesticide recommendations for efficient disease control. Through a community platform, the app also encourages cooperation and knowledge exchange among farmers.

# Project Purpose/Justification:

The project's goal is to create a mobile application specifically for the agricultural sector, filling a critical gap in the market. It increases agricultural output and efficiency by helping farmers with pesticide recommendations, disease detection, and crop identification. The goal of this initiative is to empower farmers and close the knowledge gap, which will ultimately increase crop yields and sustainability in a changing agricultural environment.

## Business Need:

The agricultural industry urgently requires accessible and user-friendly tools for crop identification, disease detection, and pesticide recommendations. This project addresses this need by providing farmers and agricultural workers with a digital solution, enhancing productivity, reducing costs, and promoting sustainable practices in agriculture.

## Business Objective:

The project's core objectives are as follows:

* **Development of a User-Friendly Mobile App:** The primary objective is to design and develop an intuitive mobile application that offers user-friendly interfaces for crop image capture, accurate crop identification, crop disease detection, pesticide recommendations, community interaction, and the dissemination of agricultural knowledge.
* **Enhancement of Crop Management:** The project aims to provide users with tools for precise crop identification, timely disease detection, and expert-recommended pesticide treatments. This assists in better crop management, improved yields, and reduced crop loss due to diseases or incorrect pesticide usage.
* **Community Building and Knowledge Sharing:** The app will foster a community of users who can share their experiences, ask questions, and receive advice from agricultural experts and peers. This objective promotes knowledge exchange, learning, and support among app users.
* **Integration with External Data Sources:** The project seeks to integrate external data sources, such as agricultural databases, weather information, and image recognition APIs, to ensure the accuracy and relevance of information provided to users.
* **Data Privacy and Regulatory Compliance:** Ensuring the app complies with data privacy regulations and agricultural industry standards is a critical objective. This includes securing user data and adhering to any regulatory requirements related to pesticide recommendations and data handling.
* **User Adoption and Engagement:** The project aims to drive user adoption and engagement by providing features that cater to the needs and preferences of farmers and agricultural workers. Achieving high user satisfaction, active community participation, and ongoing app usage is a key objective.
* **Continuous Improvement and Adaptation:** Finally, the project's objectives encompass continuous improvement and adaptation based on user feedback, technological advancements, and evolving agricultural practices. The goal is to maintain the app's relevance and effectiveness in the dynamic agricultural landscape.

# Project Description:

## Project Objectives:

Following are the main objectives of the Project:

* **Development:** Design and develop an intuitive mobile application with user-friendly interfaces within 2 months.
* **API’s Integration:** Integrate external data sources, such as agricultural databases, weather information, and image recognition APIs, to ensure the accuracy and relevance of information provided to users, by ensuring the app complies with data privacy regulations within 15 days.
* **Deployment:** Launch the App on AppStore and Play Store within next 15 days.
* **Community Feature:** Implement an essential feature of community where users can share their experiences, ask questions, and receive advice from agricultural experts and peers, promoting knowledge exchange and support among app users within 1 month.
* **Continuous Improvement and Adaptation:** Maintain the app's relevance and effectiveness in the dynamic agricultural landscape by continuously improving and adapting based on user feedback, technological advancements, and evolving agricultural practices within next 2 months.

## Success Criteria:

* The mobile app should be developed and fully functional within 6 months.
* The accuracy of crop identification should be at least 95%.
* Disease detection accuracy should meet or exceed 90%.
* The app should receive positive user feedback with a rating of at least 4 out of 5.
* At least 1000 farmers and agricultural workers should be actively using the app within the first month after launch.
* Data privacy regulations and industry standards should be consistently adhered to.

## Requirements:

The project's requirements cover technological, user, and regulatory elements. These consist of:

* Easy-to-use image capturing interfaces.
* Data integration with third-party APIs and services.
* Strong data security protocols, adherence to data privacy laws.
* Build a robust and scalable system that can handle increasing user load, data storage, and processing requirements.
* The project should accurately fulfill the expectations of the stakeholders.
* The development team should have to follow Agile methodologies, such as Scrum or Kanban for focusing on iterative and incremental development.

## Constraints:

The project faces several constraints that must be managed effectively for success:

* **Time Constraints:** The project may have a fixed timeline and involve collaboration across different time zones, requiring efficient time management and effective communication.
* **Resource Constraints:** Limited development resources and hardware for testing necessitate careful resource allocation and prioritization.
* **Limited Access to Agricultural Data:** Comprehensive agricultural data may be restricted, necessitating careful utilization of available resources.
* **Financial Constraint:** A fixed budget and potential cost limitations for cloud services require cost-effective decisions.
* **Business Constraint:** Competition and regulatory compliance demand a focus on unique features, user experience, and legal requirements.
* **Technical Constraint:** Compatibility with various devices and operating systems, integration challenges, and scalability and performance optimization must be addressed.

## Assumptions:

* Users have access to smartphones with a camera capture High Quality images because the app relies on capturing images of crops
* Sufficient training data is available for training the image classification model.
* The app users have basic knowledge and understanding of agricultural practices.
* The app's pesticide recommendation system assumes that users will consult local authorities or experts to ensure compliance with any specific regulations or restrictions on pesticide usage in their respective regions.
* The app's disease detection algorithm provides accurate results but does not replace professional diagnosis.
* Users have access to an internet connection for accessing community features and retrieving up-to-date information.

## Preliminary Scope Statement:

The final product of this project will results the design, development, and deployment of a mobile application tailored for the agricultural sector. The app will focus on crop identification, disease detection, and pesticide recommendations, along with features for community engagement. The project will adhere to data privacy regulations and ensure compatibility with various mobile devices. Continuous improvement and adaptability are inherent aspects of the project's scope to address the dynamic nature of the agricultural landscape.

# Risks:

Here are the five key project risk defined following:

* **Image Classification Accuracy:**
* The accuracy of the image classification algorithm may not meet the desired level, leading to incorrect crop identification and disease detection.
* **Integration with External APIs and Services:**
* Issues may arise when integrating with external APIs and services, such as data inconsistency, compatibility issues, or service disruptions.
* **User Adoption and Engagement:**
* Users may not adopt the app as expected or may not engage actively in the community page, limiting the app's impact and potential.
* **Data Privacy and Security:**
* The app may handle sensitive user data and must adhere to privacy regulations. Data breaches or security vulnerabilities could lead to reputational damage and legal consequences.
* **Scalability and Performance:**
* As the user base and data volume grow, the app may experience performance issues or struggle to handle increased traffic.

The project manager will determine and employ the necessary risk mitigation/avoidance strategies as appropriate to minimize the likelihood of these risks.

# Project Deliverables:

Following are the deliverables:

* **Project Plan:** A comprehensive project plan that outlines the scope, objectives, milestones, and timelines of the project. It provides a roadmap for the team, ensuring everyone is aligned and aware of their roles and responsibilities.
* **Requirements Documentation:** A detailed document that specifies the functional requirements of the app. It describes the core features, user interactions, and desired outcomes of the app, serving as a blueprint for development.
* **User Interface (UI) Design:** The UI design of the app, including wireframes, mockups, and visual assets. It focuses on creating an intuitive and visually appealing user interface that enhances the user experience and promotes usability.
* **Image Classification Model:** A trained Convolutional Neural Network (CNN) model for accurate crop identification. This deliverable involves the development and fine-tuning of the CNN model using appropriate datasets and training techniques.
* **Disease Detection Algorithm:** A machine learning algorithm that analyzes crop images to detect diseases or abnormalities. This deliverable involves developing and implementing a robust algorithm that can accurately identify common crop diseases based on visual patterns.
* **Pesticide Recommendation System:** A system that provides appropriate pesticide recommendations based on the identified crop and disease. This deliverable involves integrating a database of pesticides, their efficacy, and safety information, and implementing a recommendation engine based on user input.
* **Community Page:** The development of a community page where farmers can interact, share knowledge, ask questions, and provide answers. This includes features such as user profiles, discussion forums, voting mechanisms, and notification systems to foster engagement and collaboration.
* **Mobile App Development:** The implementation of the mobile app using React Native for the frontend and Node.js for the backend. This includes coding the app's features, integrating the image classification and disease detection algorithms, implementing the user interface, and ensuring seamless functionality across different devices.
* **Testing and Quality Assurance:** Rigorous testing of the app to ensure its stability, functionality, and performance. This includes unit testing, integration testing, user acceptance testing, and bug fixing to deliver a reliable and high-quality product.
* **Deployment and Launch:** The successful deployment of the app to the target platform (iOS and/or Android) and a well-executed launch plan to make the app available to users. This involves app store submission, server setup, and configuration, and any necessary infrastructure deployment.
* **Documentation and User Guides:** Comprehensive documentation that includes user guides, technical specifications, and any necessary documentation for future maintenance and updates. This helps users and future developers understand the app's functionalities and assists in ongoing support and enhancements.

# Summary Milestone Schedule:

The project Summary Milestone Schedule is presented below. As if the requirements changed this schedule may also changes. Any changes will be communicated through project status meetings by the project manager.

|  |  |
| --- | --- |
| Project Milestone | Target Date |
| Project Start | 01/11/2023 |
| Complete Plan of the Project | 01/12/2023 |
| Acquire all the resources | 15/12/2023 |
| Complete Mobile App Design with Simulation | 30/01/2024 |
| Deployment and Debugging | 15/02/2024 |
| Maintenance | 05/04/2024 |
| Project Complete | 05/05/2024 |

# Summary of the Budget:

Following are the summary of the budget:

|  |  |
| --- | --- |
| Project Component | Project Cost |
| Third Party API’s & Servers | $5000 |
| Software Licensing | $1000 |
| Marketing | $18000 |
| Personnel Resources | $40000 |
| Research | $10000 |
| Total | $74000 |

# Project Approval Requirements:

When the App is fully and deployed on Multiple platform such that Play store and Apple store, and all technical documentation, is fully handover to Owner within the time and cost constraints indicated in this charter. Additionally, the Application must be installed on 1000 users which makes a successful community. If the App also fulfil the Security measures and do not make conflicts with the laws and security regulations. Success will be determined when the Project fulfils the expectations and requirements of Major Project Stakeholders who will also authorize completion of the project.

# Project Manager:

Mr. Muhammad Umer is the project manager of this project. Mr. Umer responsibility is to manage all project tasks, scheduling, and communication regarding the AgriKare Inc. Mobile App project. His team, consisting of two Software Engineers. Mr. Umer will coordinate all resource requirements through the IT department manager. Mr. Umer is authorized to approve all budget expenditures up to, and including, the allocated budget amounts.

# Authorization:

This Project is approved by all stakeholder:

Project Owner :

Project Sponsor: