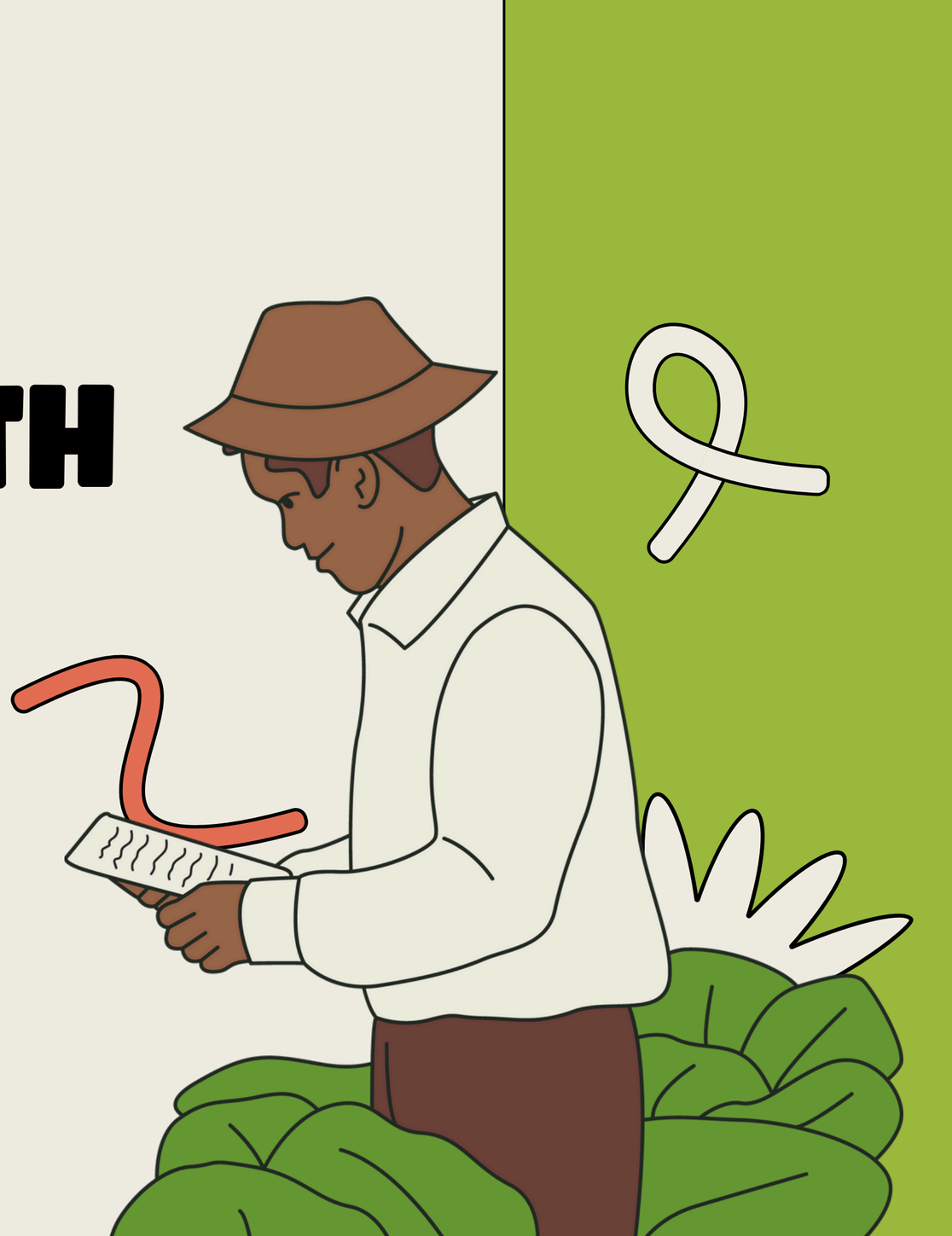
FARMWISE - AN ADVANCING AGRICULTURE WITH TECHNOLOGY



-Team 10 CGPA

INTRODUCTION

We are excited to present our project, FarmWise. Our team, is passionate about leveraging technology to revolutionize farming practices. Our objective in participating in this hackathon is to develop an innovative agricultural app that integrates precision farming tools, advanced weather prediction capabilities, and sophisticated market data analysis. By harnessing the power of AI, specifically TensorFlow, our app aims to optimize farming strategies, enhance productivity, and promote sustainable agricultural practices. We believe that our project has the potential to make a significant impact on the agriculture industry by empowering farmers with data-driven insights and decision-making tools. We look forward to showcasing our work and engaging with fellow participants and judges during the hackathon.

SOLUTION

- **Wiki-Crops** - A comprehensive offline information system for all types of crops in regional languages.

- **Offline Sensors**- Onsite Sensors such as soil hygrometers, humidity/ temperature sensors that feed data to a centralised server present on the farm.

- All systems connected through intranet over 2.4ghz band.

- For use-cases needing exchange of data with us, we will deploy village wise data centres facilitating input of data and predictive analysis of previously submitted data through a plug in/plug out process of the centralised server system deployed in farm.

FEATURES

- Crop Monitoring and Management
- Soil Analysis and Management
- Irrigation Management
- Weather Forecasting
- Pest and Disease Management
- Crop Planning and Decision Support
- Market Data Analysis
- Farm Management and Record-Keeping
- Mobile Access and Offline Support

Offline-Online Server Handling

In our agricultural app, ensuring seamless functionality both offline and online is paramount to accommodate farmers in diverse geographic locations with varying levels of connectivity.

By strategically partitioning our system into offline-capable and online-dependent components, we ensure that farmers can access critical functionalities regardless of their internet connectivity.

This approach not only enhances usability but also empowers farmers with the tools and insights needed to optimize their farming practices effectively.

Offline-Online Server Handling

Offline Capable Components:

1.Crop Monitoring and Management:
- Offline data collection from on-farm sensors (e.g., IoT devices).
- Local storage of crop health and growth data on the farmer's device.
- Visualization of historical crop data and trends without requiring internet access.

2. Soil Analysis and Management:
- Offline soil testing and analysis results stored locally.
- Recommendations for soil amendments and fertilization based on locally stored data.
- Ability to access soil health reports and recommendations offline.

3. Irrigation Management:
- Offline monitoring of soil moisture levels and irrigation scheduling.
- Local control of irrigation systems based on pre-set parameters and sensor data.
- Offline access to historical irrigation data and scheduling information.

Offline-Online Server Handling

4. Pest and Disease Management:
   - Offline pest and disease detection using image recognition or sensor data.
   - Local storage of pest monitoring data and alerts.
   - Offline access to pest control recommendations and management strategies.

5. Farm Management and Record-Keeping:
   - Local inventory management for tracking equipment, crops, and inputs.
   - Task scheduling and management stored locally on the device.
   - Offline record-keeping of farm activities, inputs, and yields.

6. Mobile Access and Offline Support:
   - Access to essential features of the app, including crop monitoring, soil analysis, irrigation management, pest and disease management, farm management, and record-keeping, without requiring internet connectivity.
   - Offline synchronization of data between the app and backend server when internet connection is available.

Offline-Online Server Handling

Online-Dependent Components:

1. Weather Forecasting:
   - Real-time weather forecasts and updates fetched from online weather APIs.
   - Integration with weather data services for accurate and up-to-date weather information.

2. Crop Planning and Decision Support:
   - Access to online databases for crop selection recommendations, planting guides, and market demand data.
   - Integration with online agricultural resources and decision support tools for informed decision-making.

3. Market Data Analysis:
   - Access to historical market data and market analysis tools via internet connectivity.
   - Integration with online market platforms and commodity exchanges for real-time pricing information and market trends.