KRISHI SAATHI

Where Tradition Meets Technology

SMART INDIA HACKATHON 2024

- **Team Name: HackSquad**
- **Problem Statement ID: 1638**
- **Problem Statement: Increased diseases and bad soil health is degrading quality and cost-effectiveness of crops.**
- **Problem Statement Category: Software**

• Key features

- **Crop Disease Diagnosis & Management:** AI-powered image analysis for early detection and treatment recommendations (both chemical and organic).
- **Market Intelligence & Direct Access:** Real-time market prices, quality assessment, and direct connection to primary markets across India and internationally.
- **Personalised Crop Recommendations**: Suggests suitable crops based on soil, weather conditions, and water availability.
- **Weather Forecasting & Alerts**: Real-time weather updates and crop-specific advisories.
- **Livestock Health Management**: AI-based health estimation and growth management, including live video consultations with experts for advice on crop growth and issues.
- **Increased Yields & Quality**: Enhanced crop health and increased yield per acre through these measures.

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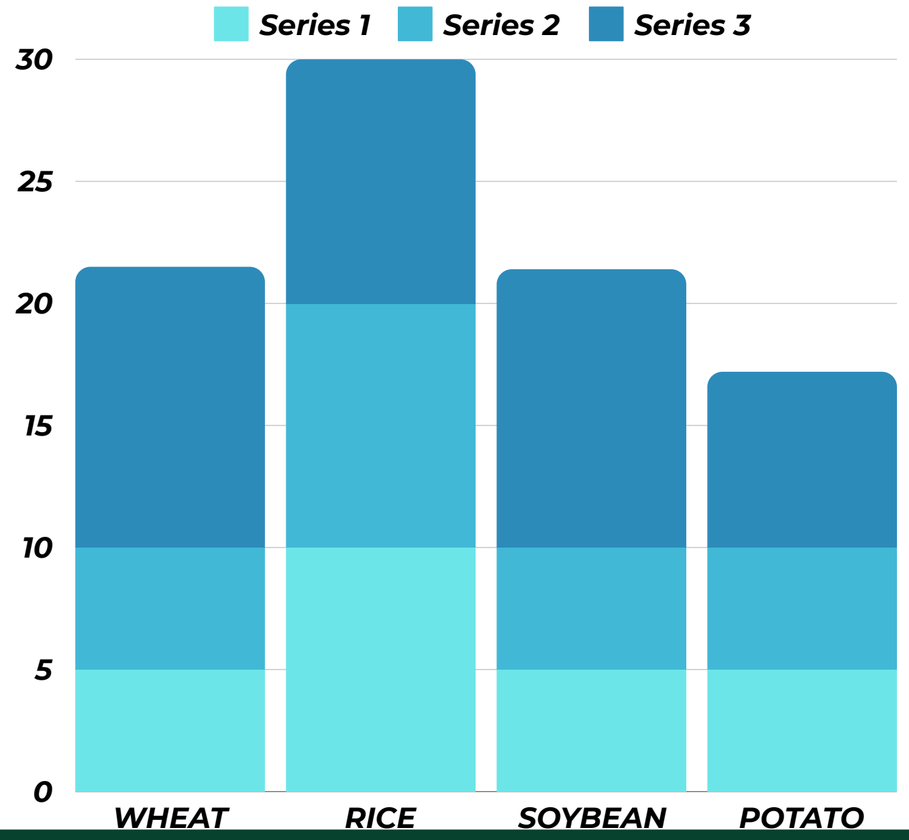
Crop Loss Data



Problems

Crops suffer with?

Farmers struggle with unhealthy crops and low yields because they don't always know the right amount of fertilizer and pesticide to use, or when the weather might cause problems. Sometimes they use too much, sometimes too little, and sometimes the weather just doesn't cooperate

Nutrient Deficiencies

How can farmers ensure crops receive adequate nutrients without over-fertilizing?

Soil Health

How can over fertilizer practices be improved to promote soil health and long-term sustainability?

Weather

How weather can create impact on crop helth ?

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Purpose: Help people and communities through innovative technology.

1. Crop and Farming Assistance: • Diagnose crop problems using photo analysis. • Identify nutrient or water deficiencies. • Provide tailored solutions using ChatGPT APIs and custom models trained for Indian agriculture. • Collaborate with agricultural experts and gather data from 1,000+ farmers per state.

2. Direct Market Access: • Compare market prices across regions for crop selling. • Use AI to assess crop quality and recommend the best market using photo of crop.

3. Crop Recommendations:

• Suggest crops based on local soil types, climate, and water sources.

• Promote organic farming methods and alternatives to chemical pesticides.

4. Animal Care:

• Estimate animal weight and age (via teeth) for proper veterinary care.

• Use AI to provide 95% accuracy in weight estimation across various breeds just using photos of animal for this we use BAIF formula.

“Stubble” A Major Problem in North India

Stubble (parali) burning is a method of removing paddy crop residues from the field to sow wheat from the last week of September to November.

Solution

Indian Aviation will use 20 pc(Parsec) biofuels, made from stubble over the next five years. Our Application will not only cognize but provide wholesale market to ‘Farmers’ to sell the stubble which was earlier Smouldered.

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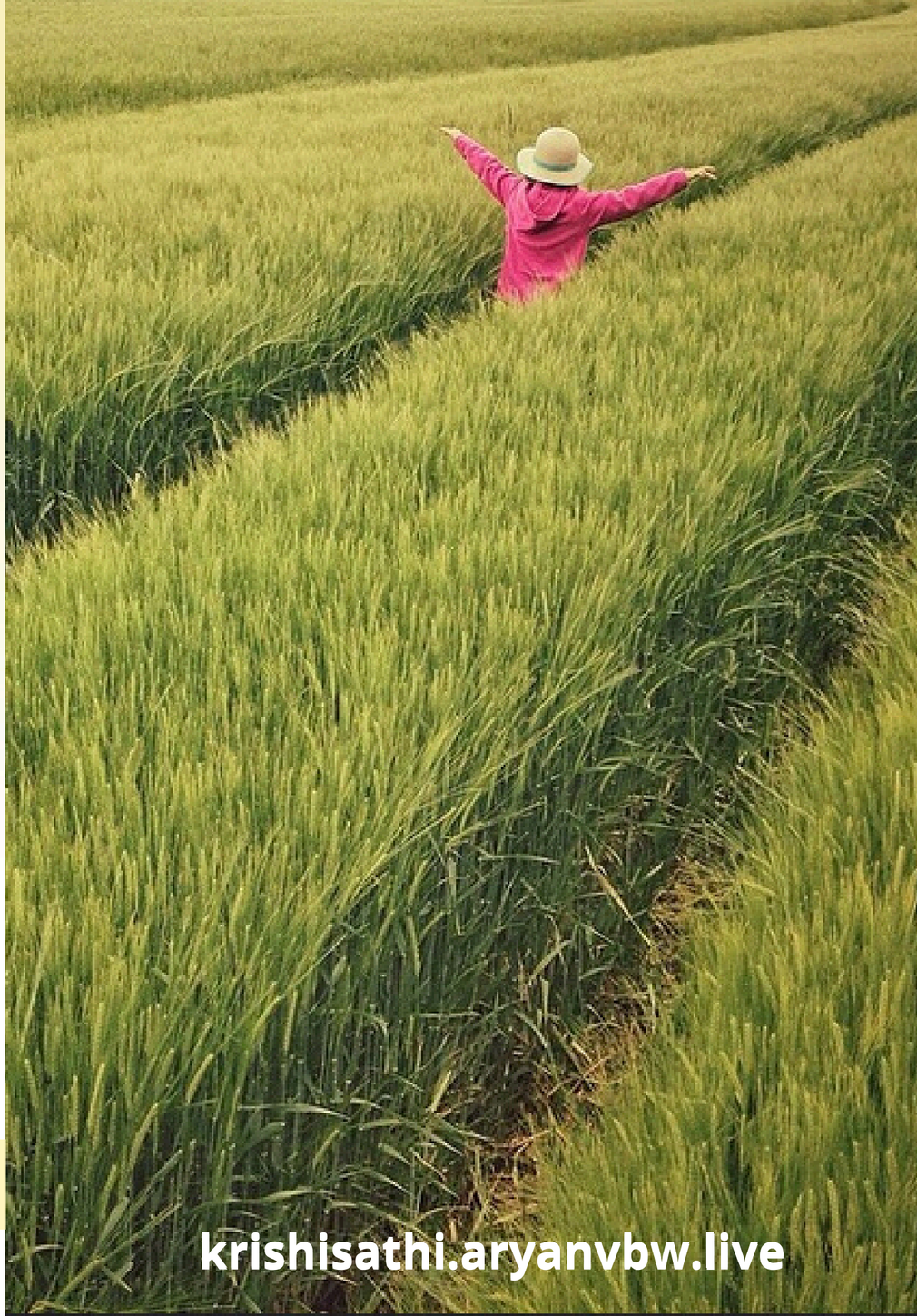

TECHNICAL APPROACH

1. Mobile App Development: The app will be built using React Native or Flutter for both Android and iOS platforms. The UI will be intuitive and User-friendly, incorporating image/video processing capabilities and seamless API integration.

2.Backend Development: Backend will leverage cloud platforms like AWS . It will utilize a robust database and AI/ML models for crop disease prediction, price forecasting, and livestock weight estimation. we also use python in back-end.

3.Integration and Deployment: The app will be integrated with ChatGPT APIs, weather APIs, and a video call feature. The back-end will be deployed on the cloud, and the app will be published on app stores.

4.Data Collection and Management: Data will be gathered from various sources, including agricultural experts, farmers, and government agencies. The data will be cleaned and preprocessed before being stored and managed efficiently.

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Communicate with APIs, such as the weather API, to provide accurate solutions

Krishi Saathi Cloud Server

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Krishi saathi's expert for support

The app sends all data, including photos and location, to the server. After processing, the server responds by sending information about the crop disease, providing the location. It fetches data from an API regarding where to send it to the farmer, along with solutions for crop diseases, including organic and chemical fertilizer recommendations.

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