Aavishkar

Inter-Collegiate / Institute / Department Research Convention

Category: Engineering and Technology **Slot No.:** **Level: 1. UG**

Farmer's Corner: AI driven and Simulation based Advisory and Monitoring System for Sustainable Farming Practices

Introduction

Indian agriculture faces challenges such as water scarcity, low productivity, and limited access to scientific guidance. Small and marginal farmers rely heavily on traditional knowledge leading to avoidable losses.

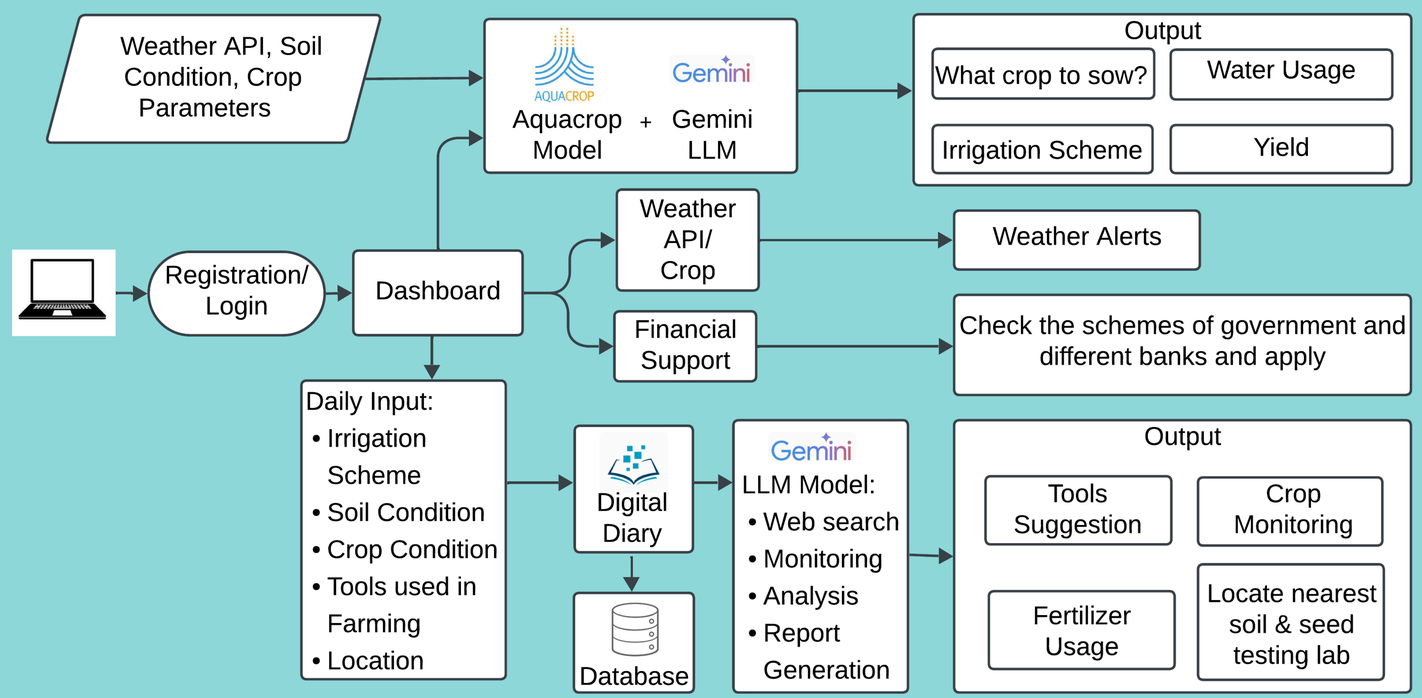
This project aims to bridge this gap by integrating AI models and data-driven analytics into a unified support system.

Aim

To build a system that gives personalized farming guidance to boost productivity, reduce risks, and support sustainable farming practices.

Objectives

- Analyze weather, soil, and crop parameters using AquaCrop and LLM-based models.
- Recommend optimal crop selection, irrigation schedules, fertilizer usage, and water planning.
- Maintain a digital diary for daily inputs and monitoring.
- Guide farmers to government schemes and financial support.



Flowchart

Research Methodology

1. Data Collection

- Weather, soil conditions, crop parameters, and farmer inputs are gathered into a central database.

2. Model Processing

- AquaCrop simulates crop growth, irrigation needs, and yield, while a LLM analyzes farmer inputs and identifies risks.

3. Decision Outputs

- The system provides crop choice, irrigation schedules, water optimization, yield estimates, and scheme suggestions.

4. Dashboard

- A digital dashboard summarizes insights, stores history, and sends real-time alerts.

References

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