AgriSense: An AI Powered Platform for Image-Based Crop Health Monitoring and Yield Estimation

SESSION 2021-25

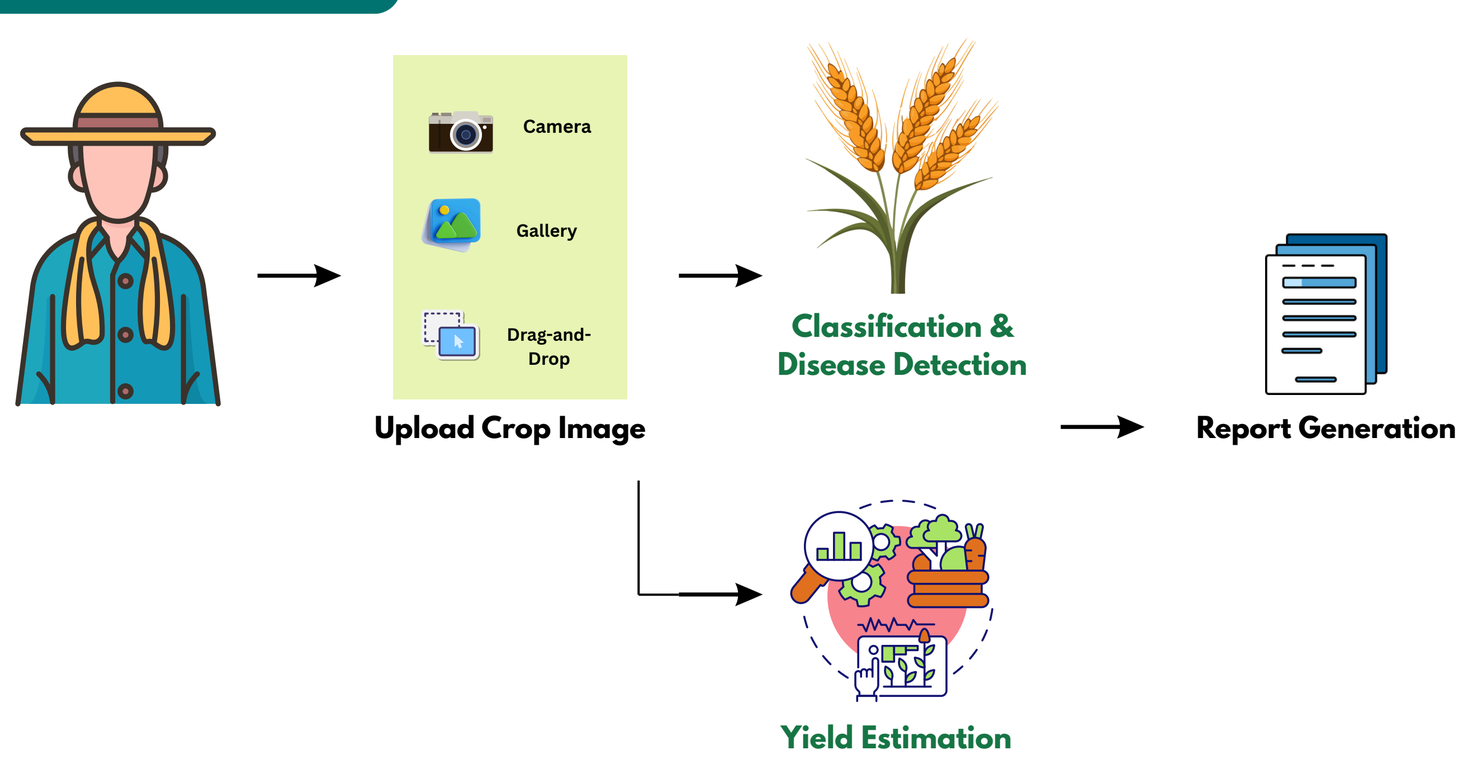
Abstract

AgriSense is an AI-powered platform that promotes sustainable farming by delivering intelligent insights through image-based crop analysis. It empowers farmers to make informed decisions via automated crop classification, health assessment, and yield estimation. Built with deep learning and a feedback-driven design, AgriSense enhances agricultural productivity while reducing diagnostic uncertainty. Its intuitive interface, localized recommendations, and progress tracking make precision agriculture accessible and impactful—especially for smallholder farmers in resource-limited regions.

UN SDG Alignment

- 2 ZERO HUNGER — Boosts crop productivity
- 12 RESPONSIBLE CONSUMPTION AND PRODUCTION — Minimizes input waste
- 13 CLIMATE ACTION — Promote Sustainable Farming

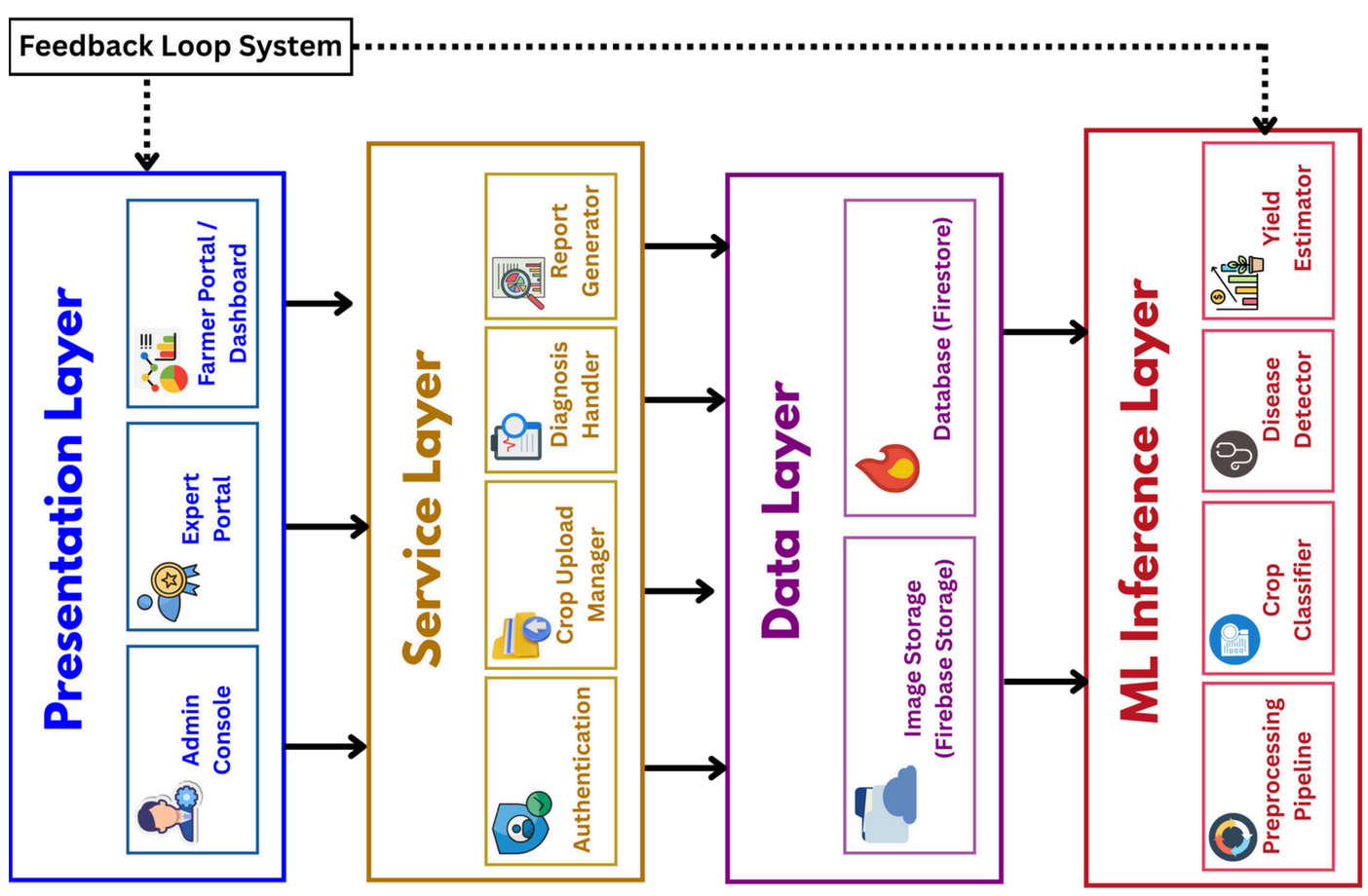
System Flow



Main Features

- Image-based Analysis
- Disease Diagnosis
- Wheat-Head Detection
- Yield Estimation
- Report Generation
- Weather Guide

Architecture



Tools & Technologies

OpenCV

Conclusion

AgriSense brings AI-driven precision agriculture to both smallholder farmers and large agribusinesses, bridging the gap between advanced technology and practical field application. By combining deep learning with a user-centric design, it enhances decision-making, boosts productivity, and fosters sustainable farming—especially in resource-constrained settings.

Department of Computer Science

Group Members: **Ayesha Gull**, **Muhammad Umer Farooq**

Supervisor: **Dr. Khawar Khurshid**

Co-supervisor: **Ammar Ahmad**

Industrial Partner: **Tkxel**