AI for Agriculture

Open for CS students

Client: Dev Shrestha (through USDA-funded Biochar Project)

The Palouse region of the Pacific Northwest provides a unique example of unirrigated hill farming. The highly variable terrain creates challenges in field management due to differences in water availability, snow accumulation, slope orientation, and top-soil depth caused by erosion.

Precision Agriculture is a site-specific farming approach that leverages data to help farmers make the best management decisions. This USDA-funded project focuses on optimizing the use of biochar to maximize farmers' return on investment.

Project Scope

We are seeking a team of Computer Science students to develop a web-based application where farmers can upload their field boundaries and yield data collected from harvesters. The application will integrate this data with publicly available resources—such as meteorological data, soil surveys, and digital elevation models—to generate actionable insights.

Key Tasks:

1. Build on the Microsoft Azure development platform.
2. Implement a secure login system for farmers.
3. Enable file uploads for field and yield information.
4. Integrate with external data providers (e.g., NRCS, USGS, NOAA).
5. Design and manage a master database system to organize multi-source data.
6. Use this data to train AI models.
7. Apply AI to generate prescription maps based on their expected benefits and desired return on investment.

Budget

$1,000 (with the possibility of additional funding depending on need).