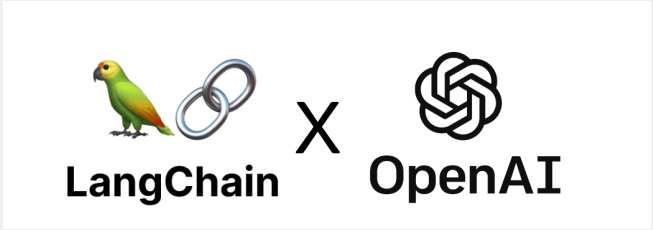
Irrigation Optimization

Objective

- **The objective of the irrigation optimization project with a chatbot is to enhance water conservation, improve crop yields, and increase resource efficiency by providing farmers with personalized recommendations for optimal irrigation practices.**

Technologies

- Machine Learning Model
- LangChain & OpenAI's GPT model
- HTML, CSS, Bootstrap and JavaScript for frontend development
- Fast API for backend



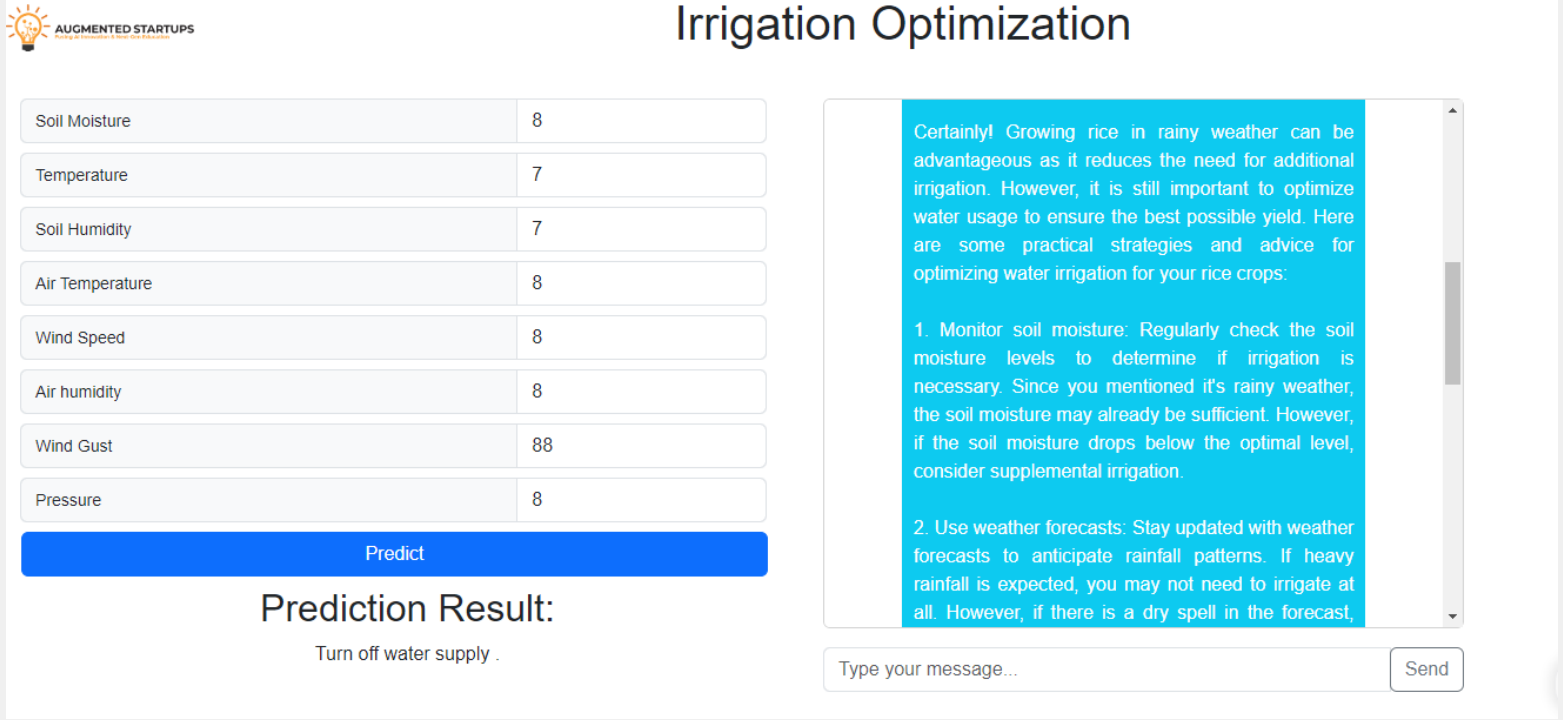
AUGMENTED STARTUPS
Computer Vision | AI | Robotics

Workflow

- Train ML models using a dataset containing weather and soil parameters for irrigation optimization
- Selection of the best model one on the basis of accuracy
- Testing of model

- Pass all input parameters to LLM via LangChain to get contextual responses and guidance ready for user queries
- Develop simple frontend using HTML/CSS/JS and bootstrap
- Use FastAPI to bridge frontend and backend functionalities
- [Optional] Deploy the chatbot on a hosting service.

Final Look


AUGMENTED STARTUPS
Irrigation Optimization
Soil Moisture
8
Temperature
7
Soil Humidity
7
Air Temperature
8
Wind Speed
8
Air humidity
8
Wind Gust
88
Pressure
8
Predict
Prediction Result:
Turn off water supply .
Certainly! Growing rice in rainy weather can be advantageous as it reduces the need for additional irrigation. However, it is still important to optimize water usage to ensure the best possible yield. Here are some practical strategies and advice for optimizing water irrigation for your rice crops:
1. Monitor soil moisture: Regularly check the soil moisture levels to determine if irrigation is necessary. Since you mentioned it's rainy weather, the soil moisture may already be sufficient. However, if the soil moisture drops below the optimal level, consider supplemental irrigation.
2. Use weather forecasts: Stay updated with weather forecasts to anticipate rainfall patterns. If heavy rainfall is expected, you may not need to irrigate at all. However, if there is a dry spell in the forecast,
Type your message...
Send

Benefits to Farmers

AUGMENTED STARTUPS
Computer Vision | AI | Robotics

- **Water Savings:** Our chatbot aids farmers in implementing precise irrigation schedules, minimizing water usage and contributing to sustainable water conservation.
- **Increased Yields**: By offering personalized advice, the system aims to optimize irrigation practices, leading to improved crop yields and overall agricultural productivity.
- **Cost-Efficiency:** The system enhances resource management by optimizing water, energy, and fertilizer usage, resulting in cost savings for farmers and promoting sustainable farming practices..
- **User-Friendly Guidance**: With an accessible interface, our chatbot provides easy-to-follow guidance, making irrigation optimization recommendations available to all farmers,

Future Steps

- Weather Integration: Incorporate real-time weather data for more accurate irrigation recommendations.
- Machine Learning Enhancement: Implement machine learning for continuous improvement based on historical data and crop performance.
- Geographic Expansion: Extend chatbot support to a broader range of crops and regions for widespread applicability.

Thank you & Welcome