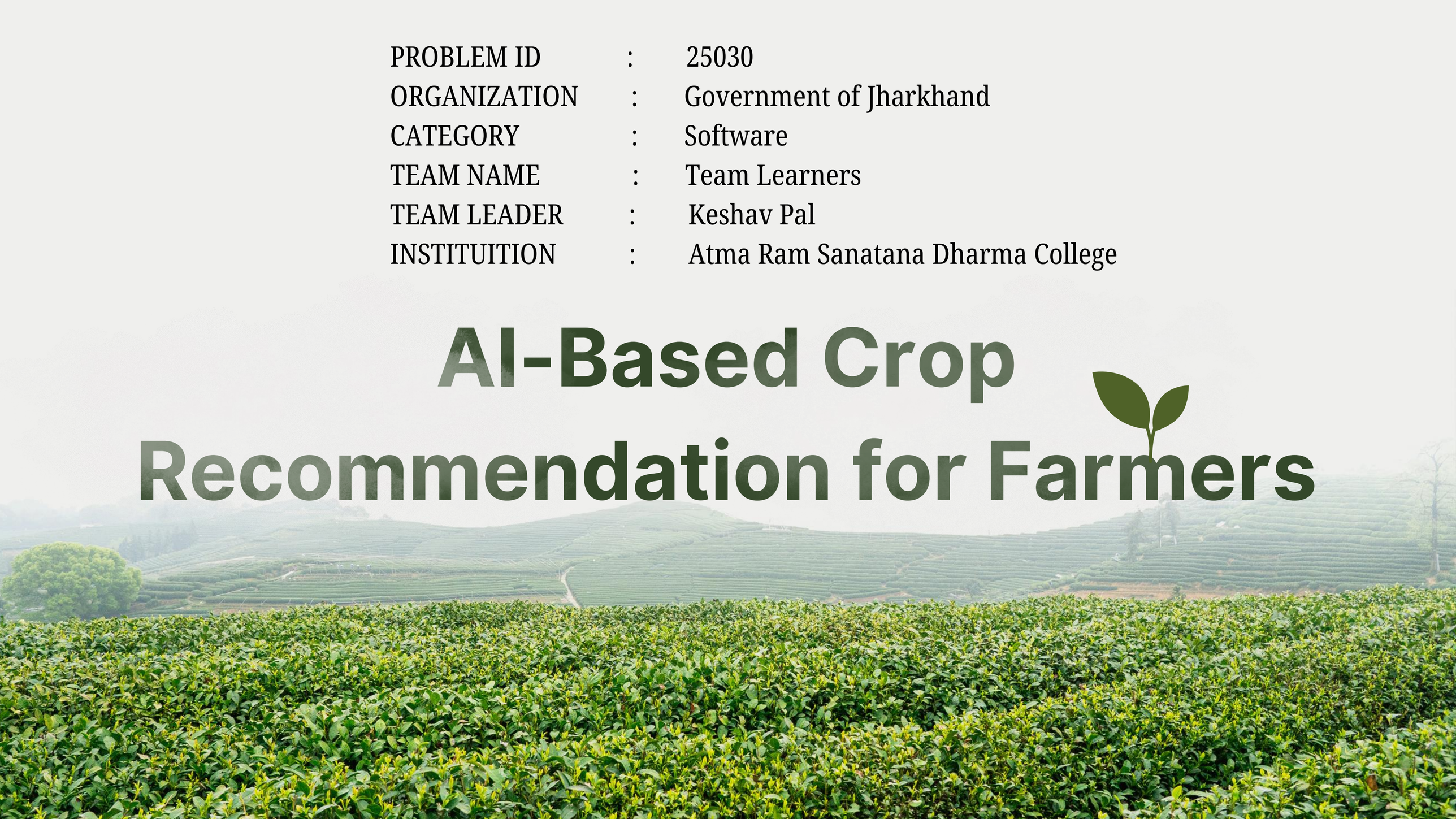
PROBLEM ID	:	25030
ORGANIZATION	:	Government of Jharkhand
CATEGORY	:	Software
TEAM NAME	:	Team Learners
TEAM LEADER	:	Keshav Pal
INSTITUITION	:	Atma Ram Sanatana Dharma College

AI-Based Crop Recommendation for Farmers



OUR TEAM MEMBERS

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Problem Statement

- **Farmers** in India often struggle to choose the right crop due to lack of access to reliable soil and climate data, **leading** to poor yield, soil degradation, and **financial** losses.

- With **changing** weather patterns, resource constraints, and **fluctuating** market demands, farmers need a data-driven solution that can guide them in selecting the most **suitable** crops or their specific soil type, region, and season.

- There is a clear **need** for an intelligent system that **simplifies** this decision-making process and empowers farmers to make informed choices for better productivity and sustainability.

Idea / Approach

- Our idea is to develop an AI-powered crop recommendation system that **assists** farmers in selecting the most suitable crop **based** on certain inputs.

- Farmers will **interact** with the solution through a simple mobile or web application, where they can input basic soil and environmental details, and in return, **receive** top crop recommendations along with profitability insights.

- This personalized, data-driven approach aims to **minimize** crop failure, improve productivity, and empower farmers with **scientific** decision-making tools which works **offline** as well.

System / Workflow

Inputs

pH,
rain,
soil type,
temperature,
previous crop data

(manual entry or auto-detected via API)

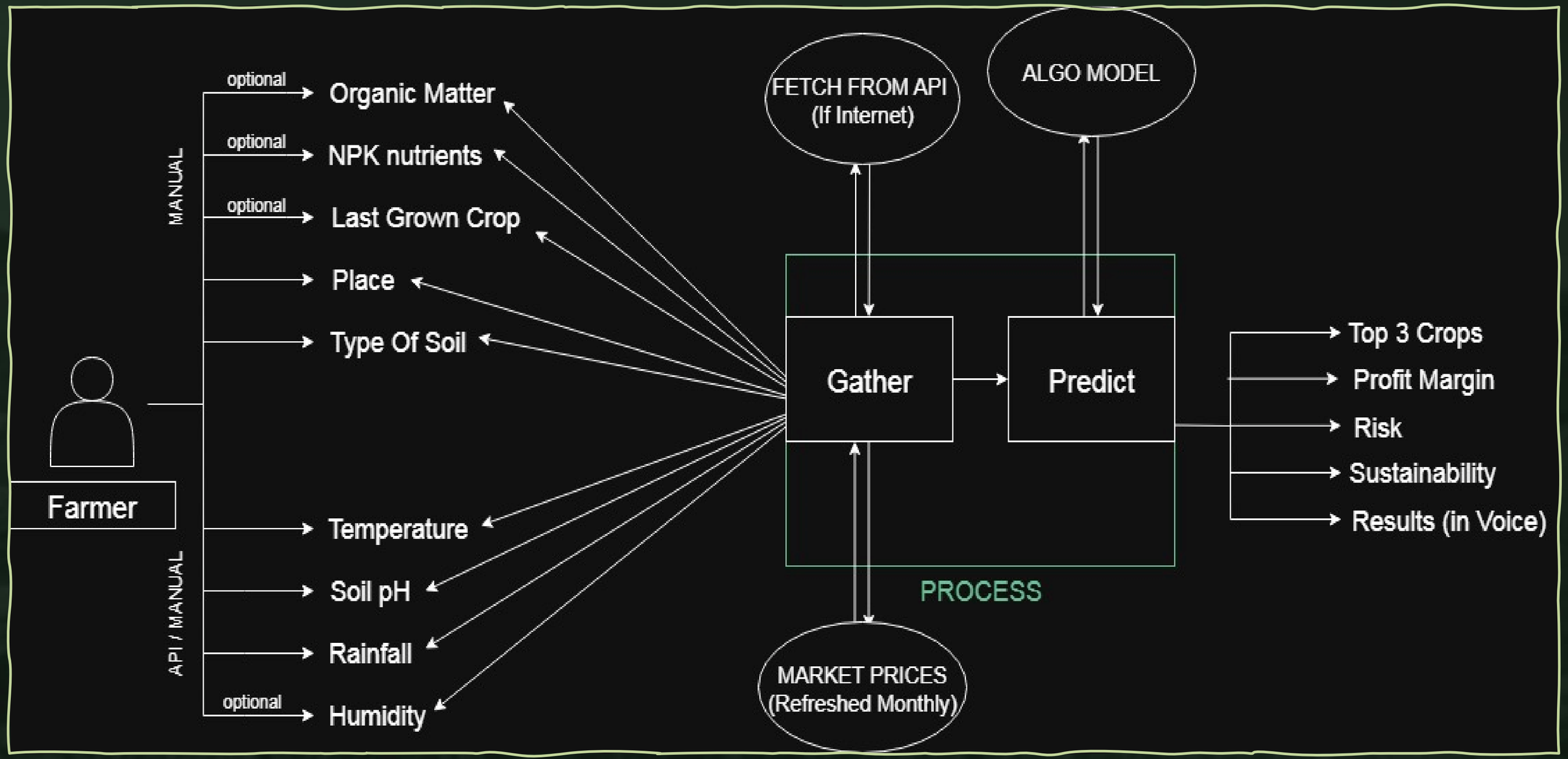
Processes

ML model,
Weather data,
Market price trends

(from mandi datasets/APIs)

Outputs

Top 3 crop recommends,
sustainability score.
yield forecasts,
profits


optional
Organic Matter
optional
NPK nutrients
optional
Last Grown Crop
Place
Type Of Soil
MANUAL
Farmer
API / MANUAL
Temperature
Soil pH
Rainfall
optional
Humidity
FETCH FROM API
(If Internet)
ALGO MODEL
Gather
Predict
PROCESS
MARKET PRICES
(Refreshed Monthly)
Top 3 Crops
Profit Margin
Risk
Sustainability
Results (in Voice)

TechStack / RoadMap

- ML & Data Processing (Python)
- Data Sources (API)
- Backend (Flask)
- Frontend (React)
- Database (MySQL)

- Collect Datasets (Open Source)
- Build & train ML model
- Weather API & database
- Develop mobile/web interface
- Testing

Challenges / Mitigation

Challenges	Mitigation
Limited reliable crop/soil datasets	Use govt. datasets, partner with agri-universities for field data
Many farmers hesitate with apps	Simple UI, support in regional languages, voice-based assistant.
Rural areas have weak connectivity	Offline-first mode with periodic sync when internet is available


Thank
You