

Pocket Agronomist: Smart Card Based Precision Farming System

Fahim Shakil
Rahman, Dhaka,
Bangladesh

A low cost smart card and solar powered kiosk system that delivers AI driven crop, fertilizer, irrigation, and pest management advice directly to farmers, making precision agriculture simple, accessible, and farmer-friendly.

► Introduction

Pocket Agronomist is a smart card based, solar powered kiosk system that provides AI-driven crop, soil, water, fertilizer, and pest management advice in a low cost, farmer friendly way.



Objectives

- Provide low cost precision farming support
- Deliver AI based crop and soil recommendations
- Reduce input waste and production cost
- Improve yield, quality, and farmer profit
- Ensure farmer friendly, offline accessibility
- Promote sustainable agriculture practices

Benifits for farmers

- Personalized advice without need for smartphones or internet.
- Reduced fertilizer and water costs (20–30% savings).
- Improved crop yield and reduced pest/disease losses.
- Accessible in local language → trust and easy adoption.
- Community model reduces individual cost burden.

Cost

Smart card per farmer: \$2–3

Shared solar-powered kiosk: \$250–300 per village

Software & AI integration: \$2,000–3,000 (one time)

Maintenance & training: Minimal (community managed)

Methodology

Data Collection–
►Farmer's soil, field & Crop Growth stored

Processing–
►Kiosk reads cards, with AI+ weather/soil database

Recommendation–
►Generates Fertilizer, Irrigation, Crop & Pest Advice

Output Delivery →
Provides Guidance Via print slip, text, or voice