

# Kisan Mitra: AI Product Service Prototype Development and Business/Financial Modelling

## Step 1: Prototype Selection

The Kisan Mitra project was selected based on three key criteria:

- 1. High Social Impact: Helps small and marginal farmers make informed decisions.
- 2. Scalability: Easily extendable across different Indian states and languages.
- 3. Technological Feasibility: Utilizes proven machine learning and NLP models with available datasets.

## Step 2: Prototype Development

Kisan Mitra combines machine learning, NLP, and mobile technologies to offer intelligent agricultural advisory services.

Key modules developed in the prototype include:

- Crop Recommendation System
- Pest/Disease Detection via Image Analysis
- Market Price Forecasting with LSTM
- Government Scheme Chatbot (Multilingual)
- Real-time Weather Alerts
- Offline Mode & Voice Interface

Model Performance:

- Crop Recommendation Accuracy: 92%
- Market Price Forecast MAPE: 7.2%
- Image Classification F1 Score: 89.5%
- Prototype Satisfaction: 4.3/5

### Modules and Features

Module	Description
Crop Recommendation	Uses soil, weather, pH, and location to suggest crops
Pest Detection	CNN model on pest images to identify disease
Market Price Forecasting	LSTM model on mandi data to predict price trends
Weather Forecasting	7-day forecasts via IMD and OpenWeather APIs
Scheme Advisor	Chatbot offering eligibility & support for gov schemes

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Offline Mode	Voice-first UI with SQLite sync for rural access
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Step 3: Business Modelling

Kisan Mitra aims to bridge the digital advisory gap in Indian agriculture.

It offers personalized decision support using AI at a low cost via voice and mobile interfaces.

Business Model Canvas (1/2)

Key Partners	Key Activities	Key Resources
ICAR, IMD, NGOs	Model training, farmer onboarding	AI models, datasets
Input Suppliers	Farmer engagement & data sync	Mobile app, chat support

Business Model Canvas (2/2)

Value Proposition	Customer Relationships	Channels
AI-driven agri advice	24/7 chatbot, IVR	WhatsApp, App, Krishi Kendras
Market price alerts	SMS alerts, agent visits	Field demos, agri events

Step 4: Financial Modelling with ML & Data Analysis

Initial Cost Breakdown:

- AI/ML Development: Rs.5,00,000
- App & Backend Infrastructure: Rs.3,00,000
- Outreach & Training: Rs.2,00,000

Revenue Streams:

- Freemium model: Rs.100/year for premium users
- B2B: Fertilizer & seed company API/ads integration
- Government grants and data licensing

ML for Financial Forecasting:

A regression model forecasts revenue based on user growth rate.

$R = (P * U) + (A * B2B)$  where:

- R: Revenue
- P: Paid user %

## **Kisan Mitra: AI Product Service Prototype Development and Business/Financial Modelling**

- U: Total users
- A: Avg B2B contribution per month
- B2B: Number of B2B partners

Projected Revenue (Year 1):

- Target Users: 50,000
- Paid Users: 10,000 (Rs.10L)
- B2B Revenue: Rs.5L
- Total: Rs.15L+