

# AI for Bharat Hackathon

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**Team Name:** Masala Models

**Team Leader Name :** Vijit Kumar

**Problem Statement:** Build an AI-powered solution that enhances decision-making, efficiency, or user experience across retail, commerce, and marketplace ecosystems.

**Project SHIELD - Supply-chain Hazard & Inflation Early-warning Logic for Distribution**

## Brief about the Idea: Current Issue

India's essential goods markets can **suddenly enter unstable conditions** due to  
*transport disruptions | extreme weather | festival demand surges | hoarding | fragmented supply chain*

**“India lacks an early-warning system”**

**What Happens Today?**

Prices jump → panic buying → small sellers blamed → late government response → hoarding increases

**Core Gaps**

- ✖ No system forecasts harmful price shocks
- ✖ No system explains their causes
- ✖ No system separates temporary noise from real crisis

## Brief about the Idea: Our Solution

### Project SHIELD

#### Supply-chain Hazard & Inflation Early-warning Logic for Distribution

An AI-based **early warning** and **market stabilization system**

that detects dangerous market instability and price shock risk before it harms consumers and small sellers.

- Continuously monitors **prices, transport flows, weather, news** and **demand signals**
- Detects **abnormal market stress patterns** instead of raw price changes



- Identifies and explains the **root cause**
- Generates **proportionate stabilization recommendations**
- Helps prevent **panic buying, artificial scarcity** delayed intervention

***Not a pricing bot | Not a price prediction engine | Not a single-variable model***

## How are we **DIFFERENT?**

### Existing Solution(s)

- Predict future prices
- Threshold-based alerts
- Use historical numeric data

#### Limitations:

- Agriculture only
- Black-box, no cause
- Treat all spikes the same
- Reactive

**They answer:**

**“What will the price be?”**

### Project SHIELD

- Detects price shock risk, not price
- Uses multi-signal intelligence (prices, logistics, weather, news)
- Explains causes (disruption, demand, hoarding)
- Works for all essential goods
- Prevents harm before panic starts

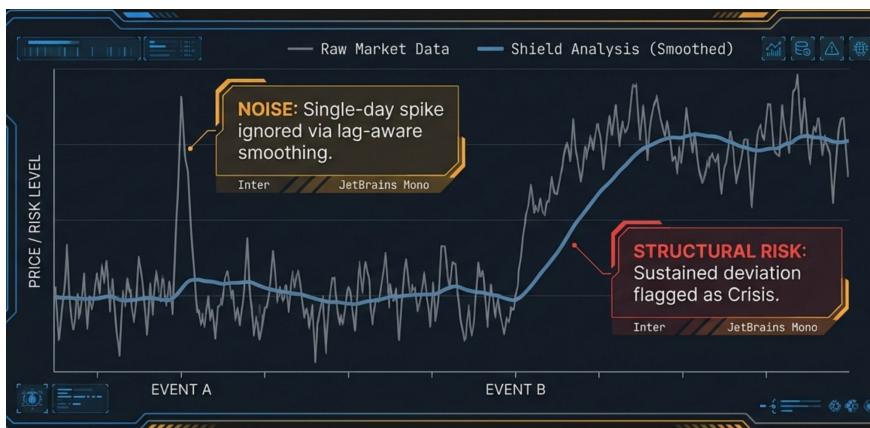
**We answer:**

**“Is the market entering a harmful shock state?”**

# Unique Selling Point (USP)

## “Market Stabilization, not Price Optimization.”

An explainable, India-first AI system that detects harmful market instability early and stabilizes essential goods prices before people suffer



### Multi-signal intelligence

Prices + Weather + Transport + News + Demand behavior

### Noise-aware detection

Filters one-off events to avoid false alarms

### Explainable by design

Shows why risk is rising, not just that it is

### Built for India

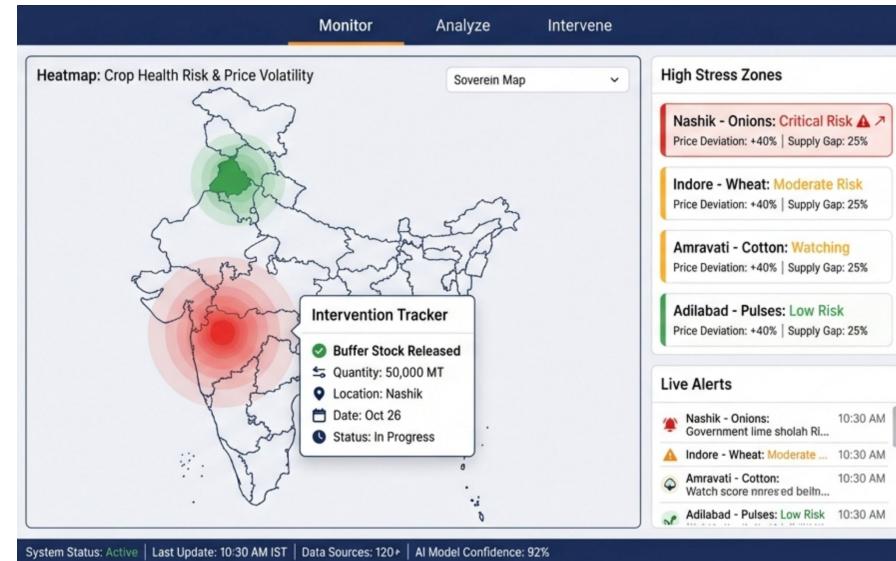
Mandis + e-commerce + fragmented logistics

### Harm prevention focus

Protects small sellers and everyday consumers

## Features of the solution

- Price Shock Risk Score
- Cause Explanation Engine
- Transport Disruption Detector
- Festival Demand Model
- Hoarding Risk Flag
- Region-wise alerts
- Dashboard for decision-makers
- Intervention impact tracker

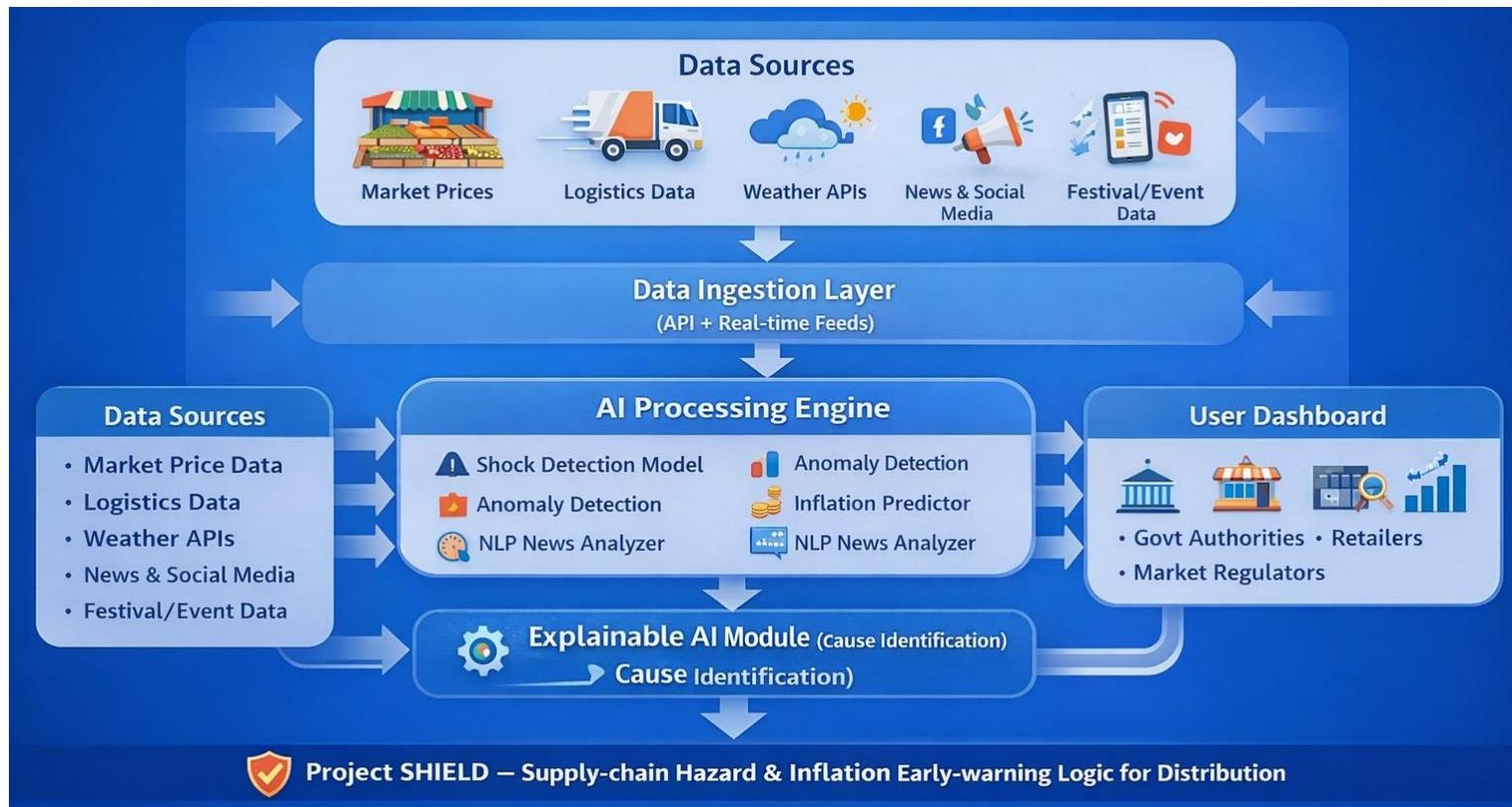


**“Action before crisis, not after”**

## Process Flow/Use Case Diagram



## Architecture Diagram



## Technologies to be used

# Technology Stack

### Core Engine



Python



PyTorch



Prophet

### NLP & AI

BERT /  
Hugging FaceFor News  
Classification

### Data & Storage

InfluxDB  
(Time-series)

PostgreSQL

### Data & Storage



InfluxDB



PostgreSQL

### Cloud Infrastructure



AWS Lambda



Amazon EC2



Amazon S3

### Frontend



React



Streamlit

## Implementation Cost

### Cost/Roadmap



#### Prototype: Free Tier (Hackathon Scale)

Minimal infrastructure, focused on proof of concept.

#### Pilot: ₹50k - ₹1 Lakh/month (1 State)

Regional deployment, initial data ingestion, testing.

#### National Scale: Pay-as-you-go Efficiency

Elastic scaling, cost optimization across all regions.

### Why AWS for Bharat?



#### Scalability for 500+ Regions

Handles peak loads during national events, ensuring uptime.



#### Auditability for Government Compliance

Immutable logs and access controls for transparency.



#### Pre-built AI for Rapid NLP

Leverage foundational models for Indian languages.

Innovation partner **H2S**  
HACK2SKILL

Media partner **YOURSTORY**

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Thank You

