Kisan e-Mitra and IoT-Enabled Technologies: Transforming Indian Agriculture

Introduction

The Government of India is leveraging **Artificial Intelligence (AI)** and **Internet of Things (IoT)**-enabled technologies to enhance **crop productivity**, ensure **sustainable farming**, and improve **farmer livelihoods**. These modern tools are helping address long-standing challenges in Indian agriculture, such as pest attacks, unpredictable weather, and limited access to timely information.

Key Initiatives

1. Kisan e-Mitra: AI Chatbot for Farmers

Kisan e-Mitra is a **voice-based, AI-powered chatbot** developed to assist Indian farmers by providing instant responses to their agricultural queries.

- Initially designed to support questions related to the **PM-Kisan Samman Nidhi** scheme.
- Now evolving to include **multiple government schemes** and services.
- Supports **11 regional languages**, making it highly accessible for farmers across states.
- Handles **more than 20,000 farmer queries daily**.
- Has already answered **over 92 lakh queries**, making it a vital support tool in the field.

2. National Pest Surveillance System

To address the growing threat of **pest attacks caused by climate change**, the government has implemented the **AI and Machine Learning-based National Pest Surveillance System**.

- Enables **real-time detection** of pest infestations using **image recognition**.
- Farmers or agricultural extension workers can **capture pest images** using mobile phones.

- The system identifies pests and **suggests timely preventive actions**.
- Currently supports **61 crops** and detects over **400 different pest species**.
- Used by more than **10,000 agricultural extension workers** across the country.

What Are IoT and AI in Agriculture?

Artificial Intelligence (AI) refers to computer systems that simulate human intelligence—such as learning, reasoning, and decision-making.

Internet of Things (IoT) refers to a network of connected devices (like sensors, cameras, and mobile apps) that collect and exchange data in real time.

In agriculture, these technologies help in:

- **Monitoring soil health**
- **Predicting weather patterns**
- **Detecting crop diseases and pests early**
- **Reducing chemical use and improving sustainability**
- **Providing farmers with real-time advisory services**

Benefits of AI and IoT in Agriculture

- **Improved crop yields** through timely interventions
- **Reduced crop losses** due to early pest or disease detection
- **Data-driven decisions** that support efficient farming practices
- **Inclusive support** through multi-language AI tools like Kisan e-Mitra
- **Empowered farmers** with instant access to expert guidance and government schemes

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Frequently Asked Questions (FAQs)

Q1. What is Kisan e-Mitra?
Kisan e-Mitra is an AI-powered voice chatbot designed to help farmers with their queries related to government schemes, especially PM-Kisan Samman Nidhi.

Q2. How does Kisan e-Mitra support farmers?
It answers farmer queries in 11 regional languages and provides real-time responses. It currently handles over 20,000 queries daily.

Q3. What is the National Pest Surveillance System?
It is an AI and Machine Learning-based system that detects pest attacks by analyzing images of pests, helping farmers take timely actions.

Q4. What crops and pests are covered under the pest surveillance system?
The system supports 61 crops and can identify more than 400 types of pests.

Q5. How are IoT devices used in agriculture?
IoT devices collect real-time data on soil, water, temperature, and crop health, enabling smarter and more efficient farming.

Q6. Why are AI and IoT important for Indian farmers?
They help increase productivity, reduce losses, save resources, and connect farmers to useful government services and expert advice.

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