**INVENTION DISCLOSURE FORM**

**Details of Invention for Better Understanding:**

1. **TITLE:** Precision Pest Control Using AI-Enhanced Monitoring
2. **INTERNAL INVENTOR(S)/ STUDENT(S):**  
   A. Full Name: [Inventor Name]  
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   Signature (Mandatory)

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**EXTERNAL INVENTOR(S): (INVENTORS NOT WORKING IN LPU)**  
A. Full Name: [Provide Relevant Details]  
Mobile Number: [XXXXX]  
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Address: [Affiliations]  
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For External Inventors, NOC (No Objection Certificate) from the affiliated institute/university/industry/lab is mandatory.

1. **DESCRIPTION OF THE INVENTION:**  
   The invention utilizes artificial intelligence (AI) and advanced image recognition techniques to monitor and control pests with precision. The system integrates IoT-enabled sensors and AI-driven analytics to detect pest activity in real-time, reducing the reliance on chemical pesticides and optimizing pest management in agricultural and urban environments.

**A. PROBLEM ADDRESSED BY THE INVENTION:**  
Traditional pest control methods rely heavily on chemical pesticides, leading to environmental pollution, resistance development in pests, and excessive costs. Current monitoring techniques are inefficient, with manual inspection being labor-intensive and time-consuming. This invention provides an AI-based solution for real-time pest detection and management, minimizing pesticide use and improving crop yields.

**B. OBJECTIVES OF THE INVENTION:**

1. Develop an AI-enhanced monitoring system that can detect and classify pests using image recognition and IoT sensors.
2. Implement precision control measures, reducing pesticide usage while maintaining crop health.

**C. STATE OF THE ART / RESEARCH GAP / NOVELTY:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No.** | **Patent ID** | **Abstract** | **Research Gap** | **Novelty** |
| 1 | [Patent ID] | AI-powered pest monitoring system utilizing IoT-based sensors | Lack of real-time detection and automated pest categorization | Our invention integrates AI for dynamic pest tracking with real-time decision-making |
| 2 | [Patent ID] | Machine learning-based agricultural pest management | Limited adaptability to diverse environmental conditions | Our system adapts dynamically based on environmental factors and pest behavior |

**D. DETAILED DESCRIPTION:**  
The invention comprises an AI-enhanced monitoring system using image recognition, IoT-enabled traps, and data analytics. The system captures images of pests, processes them using deep learning models, and classifies them based on species and infestation severity. Automated alerts notify farmers or pest control authorities to take targeted actions.

**E. RESULTS AND ADVANTAGES:**

1. Reduction in pesticide use by up to 40% through precision targeting.
2. Real-time monitoring and automated alerts, reducing manual labor.
3. Improved crop yields and reduced environmental impact.
4. Adaptability to multiple agricultural and urban settings.

**F. WORKING PROTOTYPE/ FORMULATION/ DESIGN/COMPOSITION:**  
The prototype will be developed within 3-4 months, integrating AI algorithms, IoT devices, and cloud-based analytics.

**G. USE AND DISCLOSURE:**

* Has the invention been described in any printed publication or any media? NO
* Has the invention been commercialized? NO
* Collaboration with other institutions/organizations? NO

**H. POTENTIAL CHANCES OF COMMERCIALIZATION:** YES  
List of companies that can be contacted for commercialization: [Provide details]

**I. KEYWORDS:** AI-based pest control, precision agriculture, IoT pest monitoring, smart farming.