Volume 11, Issue 4, April – 2026 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26apr1777

AI-Enabled Smart Alert System to Prevent Human–Wildlife Conflicts in Attappady Region

Neethu D.[1]

[1]Assistant Professor, Department of Computer Science College of Applied Science, Agali (Affiliated to University of Calicut)

Publication Date: 2026/05/09

Abstract: Human–wildlife conflicts are a growing issue in forest-border regions like Attappady, where frequent animal attacks cause significant loss to human life, crops, and property. This paper proposes an AI-enabled smart alert and monitoring system that combines artificial intelligence, sensors, and IoT technologies to detect wild animal movement near human habitats. The system employs intelligent sound-based deterrents and instant alerts to minimize human-animal interaction risks. The solution aims to ensure the safety of both humans and wildlife through a non-harmful and sustainable approach.

How to Cite: Neethu D. (2026) AI-Enabled Smart Alert System to Prevent Human–Wildlife Conflicts in Attappady Region. *International Journal of Innovative Science and Research Technology*, 11(4), 3848-3849. https://doi.org/10.38124/ijisrt/26apr1777

I. INTRODUCTION

The increasing incidents of wild animal intrusions in inhabited regions have created serious safety concerns.

Traditional methods such as electric fences, firecrackers, and noise traps are becoming ineffective as animals adapt to them. In Attappady and nearby hilly regions, elephant and leopard attacks have resulted in recurring human casualties. There is a pressing need for an intelligent, automated, and environment-friendly solution to predict and prevent such conflicts.

II. LITERATURE REVIEW

Existing studies have explored motion-sensing and sound-based deterrents, but most lack real-time adaptability. Recent AI developments have introduced computer vision and sound pattern recognition for wildlife monitoring.

However, these systems often require extensive power and internet access, limiting their use in remote forest-border areas. This research integrates low-cost sensors and localized AI models that function efficiently in rural and semi-connected zones.

III. PROPOSED SYSTEM

The proposed system utilizes an integrated setup of sensors, cameras, and AI algorithms to detect the presence of wild animals. Upon detection, the system triggers context-based sound deterrents and sends instant alerts to registered users and forest authorities.

The sounds are varied periodically to prevent animals from getting accustomed to them.

Simultaneously, the system captures real-time video evidence.

➢ *The Main Components Include:*

- PIR and ultrasonic sensors for motion and heat detection.
- AI-based camera module for animal recognition (YOLO or TensorFlow Lite).
- Microcontroller (Raspberry Pi / Arduino) for signal processing.
- Sound module for animal-repelling audio output.
- GSM or Wi-Fi module for message alerts.
- Cloud or local storage for video data.

IV. RESULTS AND DISCUSSION

Preliminary simulations indicate the feasibility of this system for early detection of animal movements. The dynamic sound variation and instant alert system significantly reduce response time and prevent property damage. Moreover, the approach is cost-effective and can be powered by solar energy, making it suitable for remote villages.

V. CONCLUSION

This AI-enabled alert system can serve as a preventive solution to human–wildlife conflicts by combining AI, IoT, and sustainable energy sources. The proposed model promotes safe coexistence between humans and animals

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26apr1777

while enhancing forest management and surveillance capabilities.

REFERENCES

[1]. Dheeraj, S., et al. (2023). AI for Wildlife Conservation. International Journal of AI Research.
[2]. Menon, V. (2022). Human–Wildlife Conflicts in India. Wildlife Trust of India.
[3]. Kumar, R., & Singh, A. (2024). IoT-based Alert Systems for Animal Detection. IEEE Access.
[4]. Government of Kerala. (2025). Wildlife Protection and Rehabilitation Reports, Attappady Division.