



REVIEWER'S REPORT

Manuscript No.: IJAR-50748

Date: 22-03-2025

Title: INTEGRATED DRONE FOR EFFECTIVE DISASTER MANAGEMENT

Recommendation:

- Accept as it is.....**YES**.....
- Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Tahir Ahmad

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Summary:

The paper presents a comprehensive study on the development and implementation of the Dual Mobility Drone-Rover (Drover) System, a cutting-edge approach to real-time disaster monitoring, detection, and alerting. The integration of Unmanned Aerial Vehicles (UAVs) and ground rovers enhances the capability of detecting and tracking natural disasters such as wildfires, landslides, and earthquakes. The research highlights the use of an RC FPV drone with an ESP32 camera to stream live video processed through the YOLO algorithm for object detection. Additionally, a NodeMCU with an accelerometer is employed to detect seismic activity, with data transmission via the ThingSpeak cloud platform for remote monitoring. The system's real-time alerts through beep sounds and visual notifications ensure rapid response, making it a promising contribution to disaster management.

Strengths:

1. **Innovative Integration of Technologies:** The study effectively combines drone technology, IoT-based monitoring, and AI-driven analytics, demonstrating a novel approach to disaster detection and response.
2. **Real-Time Monitoring and Alerting:** The system's ability to detect hazards in real-time and transmit alerts instantaneously enhances situational awareness and emergency preparedness.

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3. **Comprehensive Multi-Disaster Response System:** The integration of aerial surveillance with seismic sensing provides a holistic approach to disaster management, covering multiple disaster types.
4. **Scalability and Adaptability:** The proposed system is adaptable for future enhancements, such as gas detectors and temperature sensors, making it a flexible solution for various disaster scenarios.
5. **Cloud-Based Communication:** The use of the ThingSpeak cloud platform facilitates remote monitoring, ensuring that emergency response teams receive instant alerts regardless of location.

Contributions to the Field:

The research contributes significantly to the field of disaster management by demonstrating the potential of integrating drones, IoT, and AI for automated hazard detection and rapid communication. Unlike conventional disaster monitoring systems, the proposed approach reduces response time and offers a cost-effective, scalable solution adaptable to various environments. The findings underscore the critical role of emerging technologies in enhancing disaster resilience and preparedness.

Conclusion:

The study presents a well-structured and innovative solution for disaster monitoring and response. By integrating drone-based video surveillance, AI-powered detection models, and IoT-based seismic sensing, the proposed system effectively bridges the gap between disaster detection and emergency response. The research is a valuable addition to the literature on disaster management, offering practical implications for improving real-time monitoring and mitigating disaster impacts.