REVIEWER'S REPORT

Manuscript No.:   IJAR-53032   Date: 28.07.2025

Title: *IOT BASED AUTONOMOUS ROBOT FOR AGRICULTURAL MONITORING AND HAZARD DETECTION*

Recommendation:
Accept as it is ....
Accept after minor revision.................
Accept after major revision ....
Do not accept (*Reasons below*

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

Reviewer Name: Dr.R.Kiruba buri

Date: 28.07.2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This work presents an original IoT-based autonomous robotic platform that integrates environmental sensing, real-time hazard detection, autonomous navigation, and pesticide spraying into a single, affordable system for precision agriculture. Unlike previous studies that focus on isolated aspects of agricultural automation, our system uniquely combines multi-sensor monitoring (temperature, humidity, air quality, color detection) with GPS-guided mobility and GSM alerting, supported by cloud connectivity for remote monitoring. This holistic approach, along with field validation, demonstrates a practical, scalable solution addressing key challenges in modern farming...

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Detailed Reviewer's Report

Ensuring and Demonstrating Originality for Publication

Innovative Integration:

This Article combines multiple sensors (DHT11, MQ135, color sensor, ultrasonic) for comprehensive environmental monitoring, early disease detection, and obstacle avoidance. It integrates autonomous navigation with real-time hazard detection and pest control, which many existing systems handle separately.

The use of IoT cloud integration (NodeMCU + Adafruit platform) for remote monitoring and GSM for alert notifications enhances real-time decision-making, which is rarely consolidated into a low-cost, autonomous agricultural robot.

Highlighted Novel Integration

The fusion of environmental sensing, autonomous navigation, pesticide spraying automation, and live video streaming in a single robotic platform is a novel approach for smart farming. The automatic pesticide spraying mechanism triggered based on sensor inputs (without human intervention) is an innovative feature addressing pest management proactively.

The use of an Arduino Mega 2560 as the main controller for synchronizing multiple sensor inputs and actuators offers a cost-effective alternative to more expensive microcontrollers or embedded systems.

Scalability and Affordability:

It provides a scalable and low-cost option, making it accessible for small to medium farmers—a feature often overlooked in similar works.

Literature Comparison:

In your paper, provide a brief review comparing your system with previous studies or commercial solutions, underscoring how your project fills specific gaps or offers improvements.

Validated Through Experimental Results

The simulations shows the system's reliability, sensor accuracy, and operational efficiency. The cloud-based remote monitoring allows farmers to oversee their fields without being physically present, which is especially valuable for large or remote farms.

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