



# ASSESSMENT OF IOT TECHNOLOGIES IN HOME SECURITY SYSTEMS

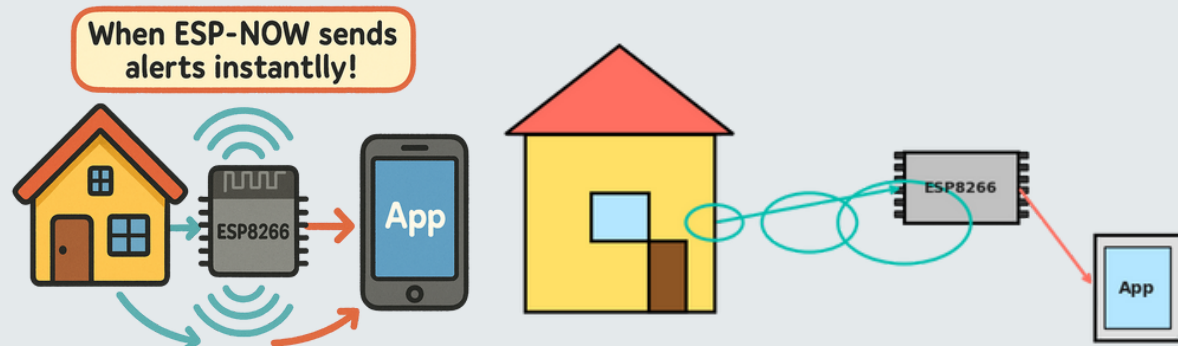
## Penulis

Mochammad Fajar Wicaksono  
Nurratri Kurnia Sari

## Afiliasi

Universitas Veteran Bangun Nusantara, Indonesia

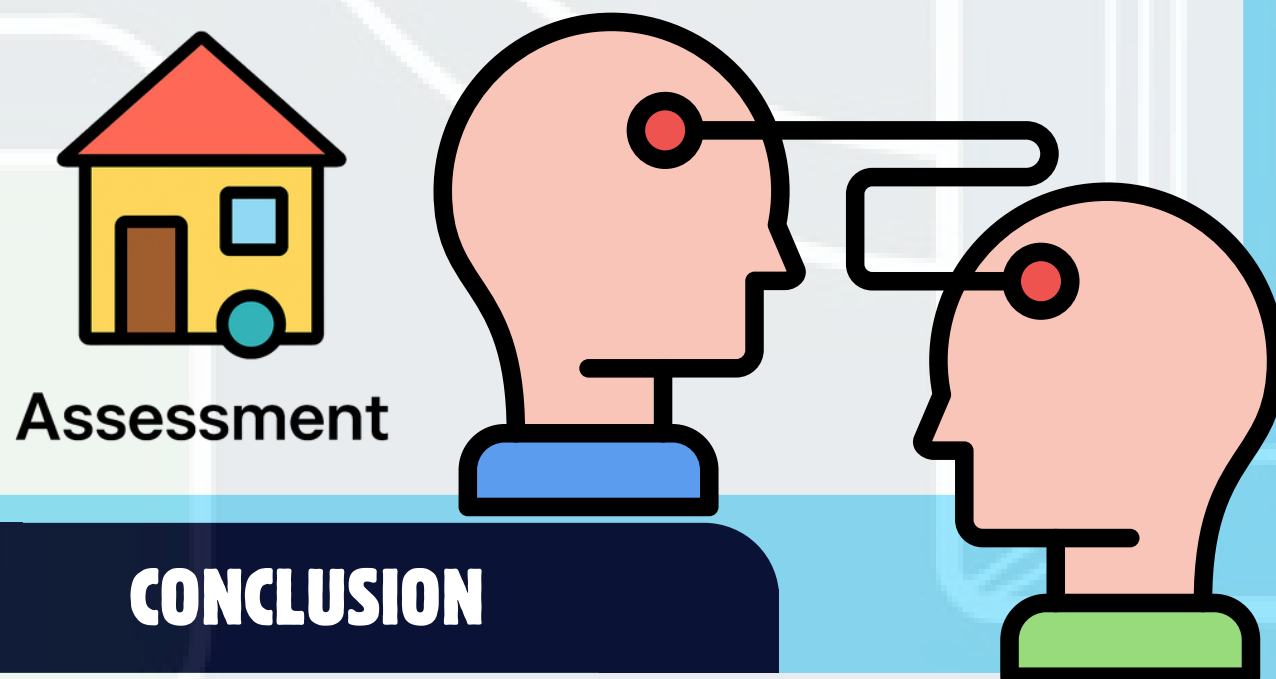
## INTRODUCTION



In today's interconnected world, the need for efficient home monitoring systems has become increasingly important. This research focuses on the development of a cluster housing monitoring system that leverages the Internet of Things (IoT) and the ESP-NOW protocol. The primary hypothesis is that combining these technologies can lead to a more efficient and responsive monitoring solution. The study aims to answer how this integration can enhance security and safety in residential areas by providing timely notifications and a unified monitoring interface

## RESULTS

The research demonstrates a 100% success rate in message transmission and server storage. Key findings include successful real-time monitoring of home conditions, effective data transmission without the need for WiFi, and instant notifications for security and safety breaches.



## CONCLUSION

The study finds that integrating IoT with the ESP-NOW protocol enhances smart home monitoring by improving data transmission efficiency and system responsiveness, while also providing better safety through real-time alerts and unified monitoring. Future research may focus on adding more sensors and incorporating machine learning for predictive analysis, showcasing the transformative potential of IoT and ESP-NOW in home security systems.

## OBJECTIVE

The main objective of this research is to design and implement a smart home monitoring system that reduces data transmission time and enhances the efficiency of response actions. This system will enable homeowners and security personnel to monitor and respond to potential threats such as intrusions, gas leaks, or fires effectively

## METHODOLOGY

The methodology employed in this study is experimental, focusing on the practical implementation of the system. The research involves:

- Experiments: Testing the communication capabilities of the ESP-NOW protocol within a cluster housing environment.
- System Design: Developing a network of ESP-NOW senders and a receiver gateway module, all controlled by NodeMCU ESP8266 units.
- Software Development: Creating a server-side application using PHP and MySQL to manage and display data through web and Android applications.

## ANALYSIS

The analysis of the data collected shows significant improvements in monitoring efficiency:

- Data Transmission: Reduced latency and faster response times compared to traditional systems.
- System Reliability: Consistent performance in various test scenarios.
- User Accessibility: User-friendly interfaces for both web and Android applications.
- Supporting visuals, including graphs and tables, illustrate the performance metrics and system architecture. These visuals provide a clear, concise representation of the data and support the study's conclusions.

## REFERENCE

