

# Smart Home Security and Safety System with Motion and Smoke detection

- To create a Security and Safety System by which tasks will be performed by a microcontroller allowing remote monitoring and control of the system via IoT.
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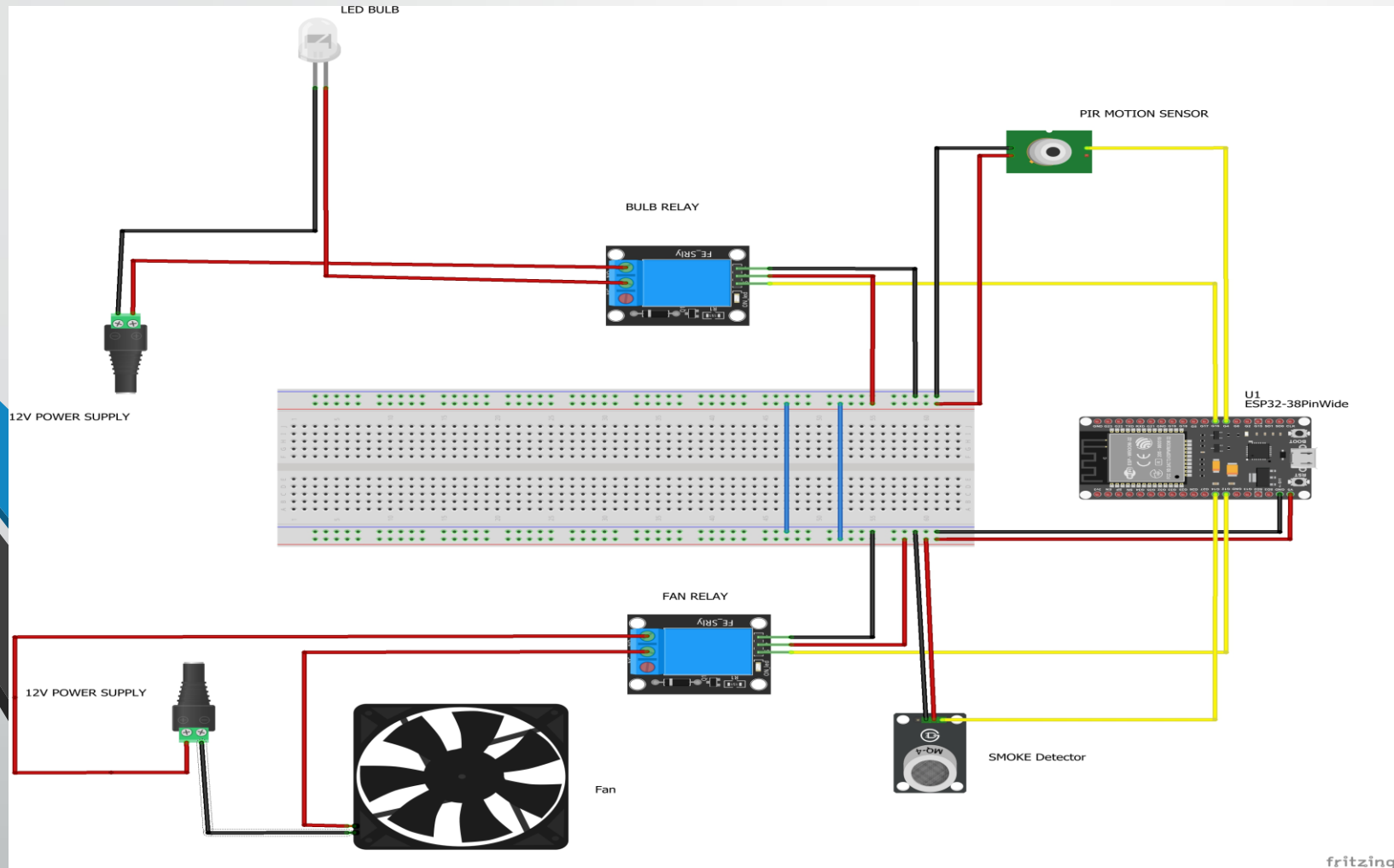


# System Components

- ESP32 microcontroller
- PIR motion sensor
- Smoke sensor (MQ2)
- 2 × Relay modules for fan and bulb control
- Breadboard
- Power supply
- Blynk application for notifications



# Schematic Diagrams



# Benefits and Applications

- Real time alerts
- Enhanced Security
- Remote monitoring
- This security system can be used in homes, offices and warehouses.



# Inspiration for The Project

## Home Security and Safety Enhancement:

- The rising need for smart home solutions that enhance security and safety motivated the project. Combining motion detection with smoke detection addresses both security breaches and potential fire hazards.

## Cost-Effective Solution:

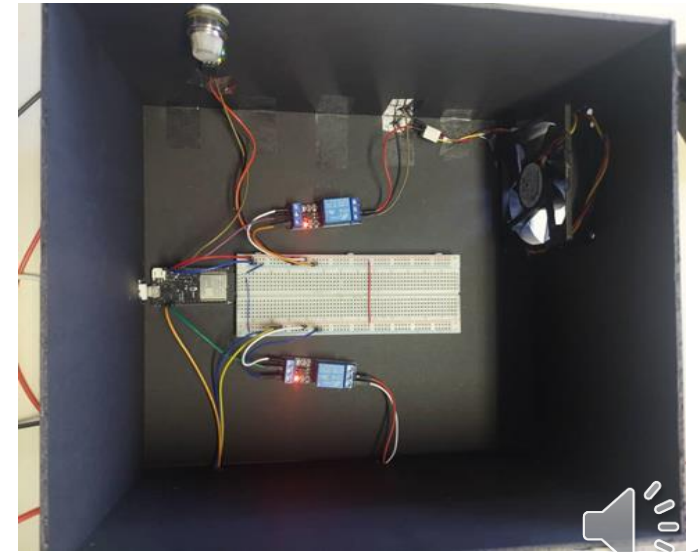
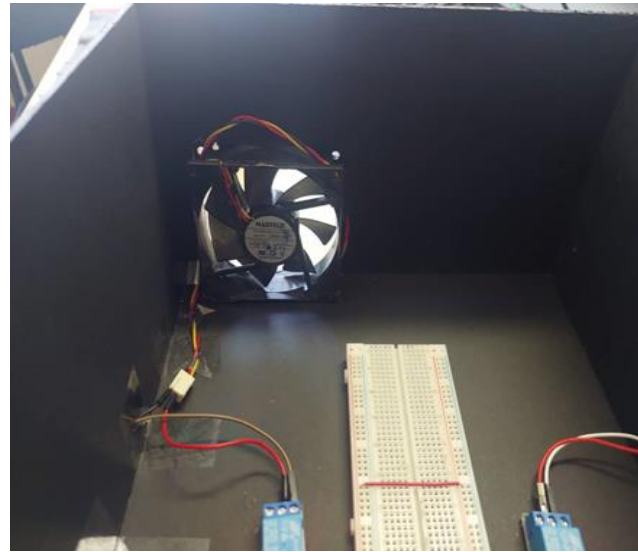
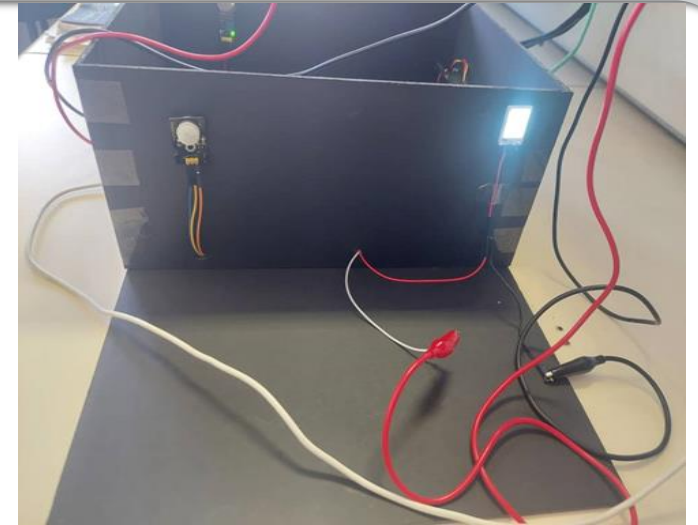
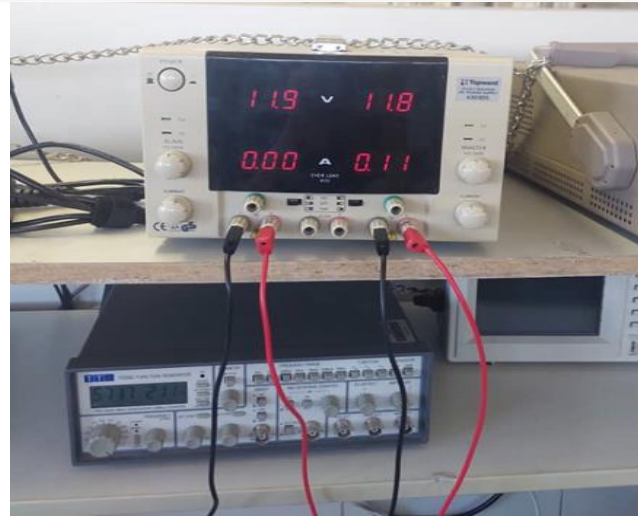
- Creating an affordable and accessible home security and safety system using readily available components.

## Convenience and Control

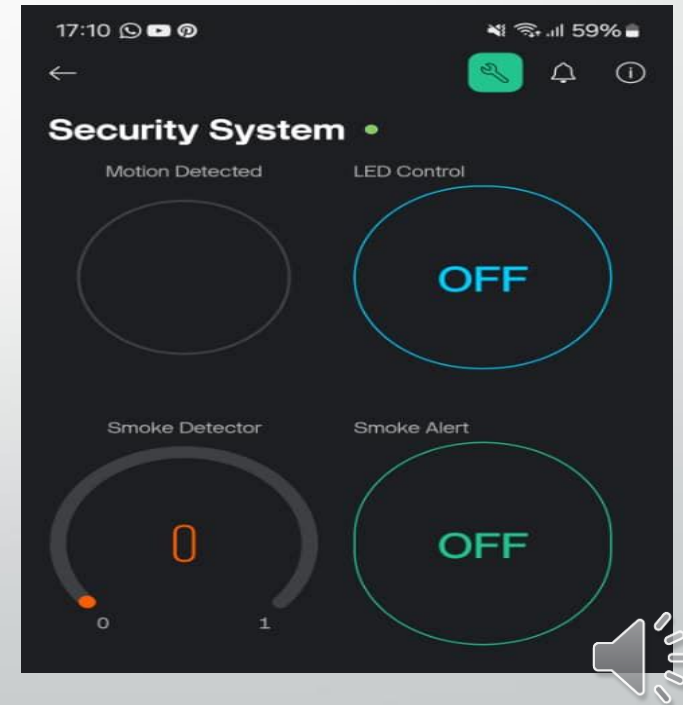
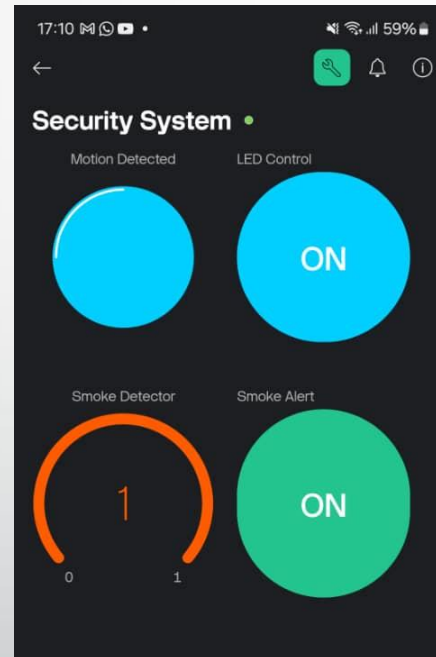
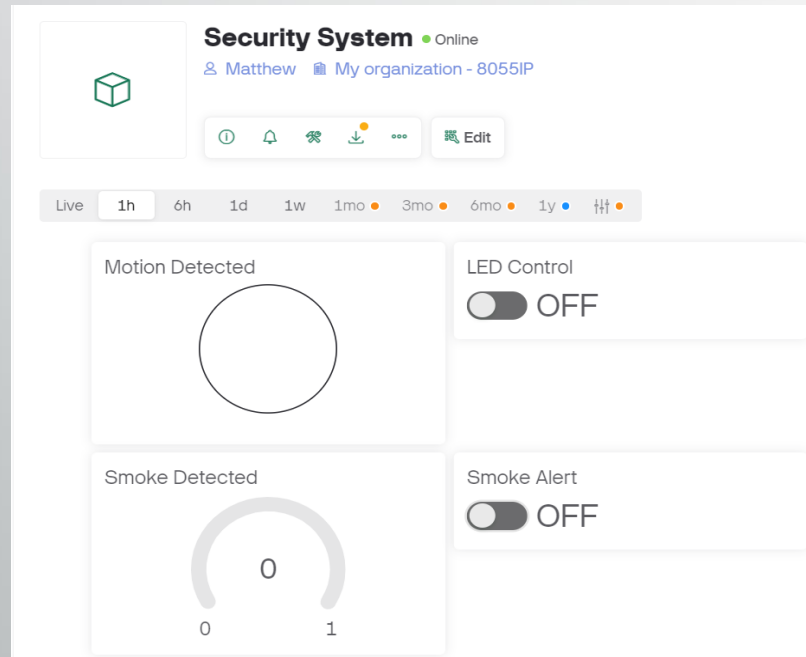
- The desire to remotely monitor and control home systems through smartphones inspired the use of the Blynk app.



# Results



# Results



# Procedures

- The design of the proposed system will be divided into four phase.
- Phase 1: Involved the planning and purchasing of components.
- Phase 2: To simulate using the ESp32 to test the program in the early stages of the project.
- Phase 3: Testing code each component separately and combining of code.
- Phase 4: Assembling and Packaging of the project.





# SWOT Analysis

## Strengths

- Remote monitoring
- Remote control
- Scalability
- Offline Capability

## Weakness

- Dependency on Wi-Fi for IoT functionality

## Opportunities

- Feature Improvement
- Educational Tool

## Threats

- Reliability issues



# Conclusion

- In conclusion, this project demonstrates the integration of motion and smoke detection with real-time notifications to create a smart Home Security and Safety System.



# Recommendations

- Enhancing the Blynk app's user interface to provide more detailed analytics and user-friendly controls.
- Investigating different IoT platforms for comparison and possible integration.
- Find more ways to improve Blynk's response time when showing if the system is online.
- Integration more sensors like a temperature and humidity (DHT11) sensor and door/window sensor and more actuators into the system.

