UNIVERSITI TEKNOLOGI MARA

IOT BASED WI-FI SMART HOME AUTOMATION SYSTEM FOR ELDERLY AND DISABLED PEOPLE

NURFATNIN HADFINA BINTI MOHD HADAFI

BACHELOR OF COMPUTER SCIENCE (HONS.) DATA COMMUNICATION AND NETWORKING

JULY 2022

Universiti Teknologi MARA

IoT Based Wi-Fi Smart Home Automation System for Elderly and Disabled People

Nurfatnin Hadfina Binti Mohd Hadafi

**Thesis submitted in fulfilment of the requirement
for Bachelor of Computer Science (Hons.) Data
Communication and Networking
Faculty of Computer and Mathematical Science**

July 2022

SUPERVISOR APPROVAL

IOT BASED WI-FI SMART HOME AUTOMATION SYSTEM FOR ELDERLY AND DISABLED PEOPLE

By

NURFATNIN HADFINA BINTI MOHD HADAFI
2022

This thesis was prepared under the supervision of the project supervisor, Rashidah Ramle. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Computer Science (Hons.) Data Communication and Networking.

Approved by

....

Rashidah Ramle
Project Supervisor

JULY 18, 2022

STUDENT DECLARATION

I certify that this thesis and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

....
NURFATNIN HADFINA BINTI MOHD HADAFI
2022

JULY 18, 2022

ABSTRACT

At this point, the percentage of the population aged 60 and older will increase from 1 billion in 2020 to 1.4 billion. Using technology can have advantages and disadvantages at any age, but previous research shows that elderly and disabled people have limitations when using technology. Due to age and health conditions, the elderly and disabled had to rely on other people to complete their daily routines. The IoT-based Wi-Fi Smart Home Automation System is developed to help elderly and disabled people to control their home appliances using the Blynk application on their mobile phones, make a noise and send alert notifications to users when there is an intruder in front of the door. The objectives of this research are to develop a prototype Wi-Fi Smart Home Automation System for elderly and disabled people using NodeMCU ESP8266 with Blynk application and evaluate the performance of the prototype through functional testing, network testing and user acceptance test. The bulbs and fan were tested three times by controlling them using the Blynk application. Next, the buzzer also was tested three times by changing the distance of people with the IR sensor to check whether it can make sound or not. Meanwhile, the IR sensor was tested three times through created scenarios by using different distances and with or without obstacles to ensure network performance. The response time is still in the acceptable range to notify the users when the distance is between 80 centimetres. The user acceptance test shows that above 50% of respondents agreed that this prototype is useful for them. For future work, other researchers can try to test the prototype with another home appliances. In summary, this research has successfully developed a Wi-Fi Smart Home Automation System prototype to ease elderly and disabled people.