Universiti Teknologi MARA

IoT based Bluetooth Smart Radar Door System via Mobile Apps

Muhamad Yusri Bin Ishak

Thesis submitted in fulfillment of the requirements
for Bachelor of Science (Hons) Computer Science
Faculty of Computer and Mathematical Sciences

January 2019

SUPERVISOR'S APPROVAL

IoT BASED BLUETOOTH SMART RADAR DOOR SYSTEM VIA MOBILE APPS

By

MUHAMAD YUSRI BIN ISHAK
2016718611

This thesis was prepared under the direction of thesis supervisor, Miss Samsiah Binti Ahmad. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfillment of the requirements for the degree of Bachelor of Computer Science (Hons).

Approved by:

....
Miss Samsiah Binti Ahmad
Thesis Supervisor

JANUARY 28, 2019

DECLARATION

I certify that this report and the research entitled IoT Based Bluetooth Smart Radar Door System via Mobile Apps is my own work and that any ideas or quotation from the work of other people, published or otherwise have been fully acknowledged in accordance with the standard referring practices of the discipline.

....

MUHAMAD YUSRI BIN ISHAK

2016718611

JANUARY 28, 2019

ACKNOWLEDGEMENT

ABSTRACT

In the last few decades, technology has improved a lot. Internet of Things (IoT) is one of the key elements in Industrial Revolution 4.0 that uses smart phones as one of the best technological intelligent devices that allows us to have power over devices without people intervention, either through remote or voice control. Most doors are designed with key locks and they usually have some potential defects such as lost key, unauthorized key component, and forget to bring keys in order to provide door safety from unauthorized access. Therefore, the "Smart Radar Door "system uses a microcontroller and mobile Bluetooth module as an automation of smart door lock system. It improves security system integrated with an Android mobile phone that uses Bluetooth as a wireless connection protocol and processing software as a tool to detect any objects near a door. The mobile device requires a password an authentication method by using microcontroller to lock and unlock door remotely. The Bluetooth protocol is chosen as a method of communication between microcontroller and mobile devices which is integrated with many Android devices in a secured protocol. This project has been conducted in an experimental basis by evaluating Bluetooth signal measurement, ultrasonic distance measurement and object detection. The findings show that this prototype system has been visualized into line graph to obtain the consistency outcome of object detection and the maximum frequency of Bluetooth signal distance to lock and unlock the door automatically. To improve this project in the future, the author suggests that wireless cameras be used to recognize and detect images for better security, provide notification messages via smartphones in real time if there are intruders sneaking through the door, and perhaps to provide a better communication protocol to lock and unlock door in long-range distance.