POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH

RFID DOORLOCK SYSTEM

NAME	REGISTRATION NO
KARRTHIK A/L PARUMASIVAN	08DEP19F2016

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2021/2022

POLITEKNIK

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This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electrical Engineering

JABATAN KEJURUTERAAN ELEKTRIK

SESI 2 2021/2022

CONFIRMATION OF THE PROJECT

The project report titled "Rfid Doorlock System" has been submitted, reviewed and

verified as a fulfills the conditions and requirements of the Project Writing as

stipulated

Checked by:

Supervisor's name   : Puan Zabidah bt Haron

Supervisor's signature :

Date   : 6/7/2022

ZABIDAH BT HARON
PENSYARAH DH44
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Politeknik Sultan Salahuddin
Abdul Aziz Shah

Verified by:

Project Coordinator name :

Signature of Coordinator :

Date   :

"I acknowledge this work is my own work except the excerpts I have already explained to our source"

1. Signature   : *karrthik*

Name   : KARRTHIK A/L PARUMASIVAN

Registration Number : **08DEP19F2016**

Date   : **10 MARCH 2022**

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE   :   RFID DOORLOCK SYSTEM

SESSION: SESI 2 2021/2022

1. I am **KARRTHIK A/L PARUMASIVAN (08DEP19F1071)** is a final year student of **Diploma in Electrical Engineering, Department of Electrical, Politeknik Sultan Salahuddin Abdul Aziz Shah**, which is located at **Persiaran Usahawan,40140 Shah Alam Selangor Darul Ehsan**. (Hereinafter referred to as 'the Polytechnic').

2. I acknowledge that 'The Project above' and the intellectual property therein is the result of our original creation /creations without taking or impersonating

any intellectual property from the other parties.

3. I agree to release the 'Project' intellectual property to 'The Polytechnics' to meet the requirements for awarding the **Diploma in Electrical Engineering** to me.

Made and in truth that is recognized by;

   a) KARRTHIK A/L PARUMASIVAN

(Identification card No: - 011219-10-179)   *karrthik*

                                        KARRTHIK A/L PARUMASIVAN

In front of me, **Puan Zabidah Binti Haron**
(780613015804)   ....…….……….

As a project supervisor, on the date: (**Zabidah Bt Haron**)

ACKNOWLEDGEMENTS

I specially want to thank Politeknik Shah Alam for giving me this opportunity to enhance my knowledge of report writing and project development skills. Without the support of our college this report, and the project would not have been possible.

I am highly indebted to my project supervisor, Madam Zabidah Bt Haron for their continuous support, motivation, and guidance throughout the complete duration of my project. Despite this pandemic situation and their hectic schedule, they keep me updated and truly remained driving spirit in my project. Their experience on the report writing and project development skills has truly helped a lot to develop this project and to improve my report. Furthermore, I would like to express my deepest appreciation to them because they helped me a lot to understand my project and always suggested and encouraged me to complete this project.

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ABSTRACT

Wireless security based applications have rapidly increased due to the dramatic improvement of modern technologies. Many access control systems were designed and/or implemented based on different types of wireless communication technologies by different people. Radio Frequency Identification (RFID) is a contactless technology that is widely used in several industries for tasks like access control system, book tracking in libraries, tollgate system, supply chain management, and so on. In this paper, automatic RFID-based access control system using Arduino was designed. The system combines RFID technology and Arduino to accomplish the required task. When the RFID reader installed at the entrance detects an RFID tag, the system captures the user unique identifier (UID) and compares it with the stored UID for a match. If the user UID captured match with any of the stored UID, access is granted; otherwise access is denied. The results clearly show that the system is cheap, effective, and a reliable means of granting or denying access in a secured environment

ABSTRAK

Aplikasi berasaskan keselamatan tanpa wayar telah meningkat dengan pesat disebabkan peningkatan dramatik teknologi moden. Banyak sistem kawalan capaian telah direka bentuk dan/atau dilaksanakan berdasarkan pelbagai jenis teknologi komunikasi wayarles oleh orang yang berbeza. Pengenalan Frekuensi Radio (RFID) ialah teknologi tanpa sentuh yang digunakan secara meluas dalam beberapa industri untuk tugas seperti sistem kawalan akses, pengesanan buku di perpustakaan, sistem pintu tol, pengurusan rantaian bekalan dan sebagainya. Dalam kertas ini, sistem kawalan capaian berasaskan RFID automatik menggunakan Arduino telah direka. Sistem ini menggabungkan teknologi RFID dan Arduino untuk menyelesaikan tugas yang diperlukan. Apabila pembaca RFID yang dipasang di pintu masuk mengesan teg RFID, sistem menangkap pengecam unik pengguna (UID) dan membandingkannya dengan UID yang disimpan untuk perlawanan. Jika UID pengguna ditangkap sepadan dengan mana-mana UID yang disimpan, akses diberikan; jika tidak akses dinafikan. Hasilnya jelas menunjukkan bahawa sistem itu murah, berkesan dan cara yang boleh dipercayai untuk memberikan atau menafikan akses dalam persekitaran yang selamat

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CHAPTER 1

INTRODUCTION

1.1   Introduction

Since innovation is so cutting-edge, one of a kind access control frameworks have turned out essential to win security dangers to different associations. Access control framework confines access to a property, a structure, ora space to approved people. In the field of data and protection security, door access control frameworks are assuming major indispensable jobs to shield associations. This is where everything is related with the framework, where anyone can get hold of information from wherever around the world. In this manner, hacking of one's data is a noteworthy issue. On account of these perils, it is basic to have a type of individual recognizable proof (ID) to get to one's own specific data. Security get to framework is exceptionally helpful to use at home, office and business structures. Every one of these years, different frameworks are acquainted with track the individual's development. Among standard individual ID systems, secret key and ID card strategies are the most watched techniques. Be that as it may, it isn't hard to hack password now and recognizable ID cards may get lost, henceforth making these strategies very sketchy. With the upgrade in the innovation, Framework Security is getting to be thought of significant worry in different associations and consequently advanced locks have turned into a significant piece of these security frameworks . There are numerous sorts of security frameworks that are accessible for security of our place.

1.2   Project Background

In today's concurrent world security is the biggest concern. Therefore to achieve the milestone of safety and security we come up with the idea to design security system which can be deployed in secured zone where only authentic person can get entry. We here have made use of RFID and Arduino for door lock system. The RFID is the less expensive and more effective next generation upgrade for door lock system with the only purpose of safety and security. With the use of RFID sensor and Arduino we can lock and unlock the door. We have attached DC servo motor with the door as an additional feature. This system takes safety to next level.

1.3   Problem Statement

The necessity of security can be achieved by designing different types of door locks such as mechanical locks or any electrical locks. Usually, mechanical door locks are designed with one or more keys, but for locking a huge area many keys and locks are needed which creates difficulties and various problems. Generally, traditional locks are heavy and delicate as they can easily be damaged. Moreover, keys can be easily misplaced or may fall into wrong hands which creates a possibility for an intruder to break into a house, while the owner does not even get notified about the situation. Likewise, the use of such traditional lock system has been the main risk factor for increasing household burglary in Malaysia, to minimize the burglary rate the use of a smart lock is must. There are so many advance smart door lock technologies available in the market to overcome these problems, but they are very expensive and not applicable to all users.

1.4   Research Objectives

The main objective of this Project is develop a hassle-free smart door lock system to enhance household security by providing modern technology and create a simple and cost-effective product in a short period so that it can applicable and affordable to the average people and can compete in the present market. Moreover,To develop a reliable and convenient smart door lock so that people will have an easier time unlocking their doors and to decrease the household burglary rate to a large extent.

1.6   Project Significance

The earliest patent for a double-acting pin tumbler lock was granted to American physician Abraham O. Stansbury in England in 1805, but the modern version, still in use today, was invented by American Linus Yale Sr. in 1848.

1.7   Chapter Summary

Introduction, background research on the project, and details pertaining to the project "Rfid Doorlock System" are all included in chapter 1. The project's research references earlier work and is able to describe the problem description, study objectives, and scope. Previous projects like Arduino are used to highlight the project's importance.