

FINGERPRINT ATTENDANCE SYSTEM



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FINGERPRINT ATTENDANCE SYSTEM

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This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Computer Security) with Honours.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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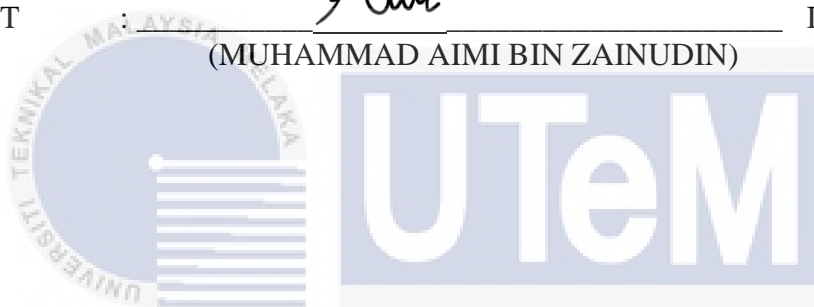
2021

DECLARATION

I hereby declare that this project report entitled
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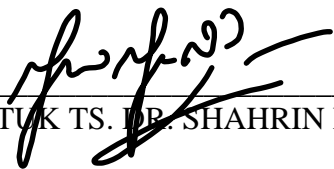
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I hereby declare that I have read this project report and found
this project report is sufficient in term of the scope and quality for the award of
Bachelor of Computer Science (Computer Security) with Honours.

SUPERVISOR :  Date : 10/9/2021
(PROF. DATUK TS. DR. SHAHRIN BIN SAHIB)

DEDICATION

I dedicated this work to my dearest beloved parents, Zainudin bin Abd Majid and Habibah binti Isnin who always keep motivating me and supporting me to get through everything in my studies. Thank you so much for all of your support and encouragement throughout the years.



ACKNOWLEDGEMENTS

I would like to thank Prof. Datuk Ts. Dr. Shahrin bin Sahib for his assistance in completing this project effectively, as well as for his insight and guidance in completing this project.

I also want to thank my wonderful parents for their encouragement and support during this project.



ABSTRACT

The project is an employee attendance scheme that uses a biometric fingerprint scanner to monitor the timing of their arrival at the workplace. Therefore, this project is proposed due to the obvious behaviour of some worker who have come late but are asking their co-workers to punch their cards early or called as “buddy punching”, so that their boss would not notice if they had been late. Other than that, the problem is difficulty in order to track back employee’s attendance as the admin or person-in charge did not have a proper system. Next, there is no database to store attendance for traditional attendance method. The traditional method stores the attendance physically and easy to get tampered. After that, the high-rate time cheating among employees. This biometric fingerprint scanner for attendance can reduce the number of “buddy punching” in the company as each fingerprint unique for every person in this world. So, employees will not be able to trick or cheat their selves out of problems by using a biometric fingerprint scanner. From using this attendance method, the rate of attendance cheating will also be minimised and reduced since a fingerprint would be used to mark and record the exact arrival time at the workplace. From some research that I have made, the fingerprint device is by far the most price efficient and simple to use, without any negative health consequences. As a result, this fingerprint attendance system may be used to track and monitor the attendance of employees more accurate.

ABSTRAK

Projek ini adalah skema kehadiran pekerja yang menggunakan pengimbas cap jari biometrik untuk memantau waktu ketibaan mereka di tempat kerja. Oleh itu, projek ini diusulkan kerana tingkah laku yang jelas dari beberapa pekerja yang datang lewat tetapi meminta rakan sekerja mereka untuk menebuk kad mereka lebih awal atau disebut sebagai "rakan meninju", sehingga bos mereka tidak mengetahui jika mereka terlambat. Selain itu, permasalahan yang timbul adalah kesukaran untuk mengesan kehadiran pekerja kerana pentadbir atau orang yang bertanggungjawab tidak mempunyai sistem yang sesuai. Seterusnya, tidak ada pangkalan data untuk menyimpan kehadiran untuk kaedah kehadiran tradisional. Kaedah tradisional menyimpan kehadiran secara fizikal dan mudah diubahsuai. Selepas itu, penipuan masa yang tinggi di kalangan pekerja. Pengimbas cap jari biometrik untuk kehadiran ini dapat mengurangkan jumlah "teman meninju" di syarikat kerana setiap cap jari unik untuk setiap orang di dunia ini. Oleh itu, pekerja tidak akan dapat menipu masa atau menipu diri sendiri dengan menggunakan pengimbas cap jari biometrik. Dengan menggunakan kaedah kehadiran ini, kadar kecurangan kehadiran juga akan diminimumkan dan dikurangkan kerana cap jari akan digunakan untuk menandakan dan mencatat waktu kedatangan yang tepat di tempat kerja. Dari beberapa kajian yang telah saya buat, alat cap jari ini adalah harga yang paling efisien dan mudah digunakan, tanpa kesan kesihatan yang negatif. Hasilnya, sistem kehadiran cap jari ini dapat digunakan untuk mengesan dan memantau kehadiran pekerja dengan lebih tepat.

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LIST OF ABBREVIATIONS

FYP - **Final Year Project**



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CHAPTER 1: INTRODUCTION

1.1 Introduction

Nowadays, every company or workplace have their own attendance system. This attendance system is very important for employers to know or check whether their staffs or employees coming up as scheduled. Due to technology advancement, the traditional pen-paper attendance or punch card attendance system have become more and more crucial. The traditional method for attendance system has many weaknesses and flaws. For example, pen-paper attendance needs to do or check calculation manually and any absent employee hard to track on the specific date and time. Other than that, for punch card attendance system has critical flaws to detect any time cheating such as “buddy punching” among employees. Along with the time cheating among employees, companies should improve their attendance system by using biometric attendance system.

Biometric authentication is an effective way to secure identity data nowadays. This biometric method also has been used for attendance systems. There are several types of biometric attendance systems, such as using facial recognition, iris recognition and fingerprint authentication. Fingerprint has widely used because fingerprint itself is unique and different for every person in this world even though they are twins. Of all biometric systems, the fingerprint device is by far the most price efficient and simple to use, without any negative health consequences (Abioye 2018). Using fingerprint also much more accurate and user friendly for all employees. Fingerprint attendance system will use fingerprint scanner to track or record attendance using accurate time and it will notify admin or manager if late present. Fingerprint scanner using solid state sensors give the most reliable and accuracy to use.

Therefore, the purpose of this proposed project an employee attendance scheme that uses a biometric fingerprint scanner to monitor the timing of their arrival at the workplace using Arduino with fingerprint scanner module. This project will help to track and monitor each of the employee's attendance and view history of the existing attendance.

1.2 Problem Statement

The main problem is difficulty in order to track back employee's attendance as the admin or person-in charge did not have a proper system. Next, there is no database to store attendance for traditional attendance method. The traditional method stores the attendance physically and easy to get tampered. After that, the high-rate time cheating among employees.

Table 1.1: Summary of Problem Statement

PS	Problem Statement
PS1	Difficult to track back and monitor employee's attendance.
PS2	Does not have proper database to store attendance.
PS3	High rate on time cheating among employees

1.3 Project Research Question

Project research question is used to define methods of ensuring attendance tracking among employee, the ways to reduce time cheating, and the solution in order to handle this particular problem, reason to use biometric fingerprint scanner module. Table 1.1 shows the summary of project research question.

Table 1.2: Summary of Project Research Question

PS	PRQ	Project Research Question
PS1	PRQ1	How to handle time cheating attendance?
PS2	PRQ2	How to track and monitor the attendance of employee?
PS3	PRQ3	What is the global solution to handle time cheating?

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1.4 Project Objective

Project Objective define clear results or outcomes and achievable deliverables which the project would develop. The improvement about project is based on the stated problem statement and the project question. Table below shows the project objectives.

Table 1.3: Summary of Project Objective

PS	PRQ	PO	Project Objective
PS1	PRQ1	PO1	To analyse various forms of biometric technology systems and how they have been used in attendance system in various organizations.
PS2	PRQ2	PO2	To identify various factors that are to be considered to recommend a fingerprint biometric attendance system which traditional method have more flaws.
PS3	PRQ3	PO3	To implement a reliable fingerprint attendance system using Arduino.
		PO4	To evaluate the performance and reliability of the proposed system

1.5 Project Scope

Project scope is a detailed record of all that focuses on creating a project a success and fully functions. The project scope will also give an overview of entire project. For this project, the project scope will describe the targeted user and modules related to biometric fingerprint attendance system.

1.5.1 User

The target user for this project is the admin or person-in-charge who want to track and monitor employee attendance.

1.5.2 Modules/Functions

Since a module or function is a component of a program in software, it may help the system succeed. There are some modules that related for this project such as:



i. Search

This module give permission to admin to search specific employee their attendance history.

ii. Update

The update module allows the admin to edit or alter a worker's records or history. Only the ID, name, and department may be altered.

iii. Save

This module allows the admin to save every new employee to the database.

iv. Fingerprint scanner module

This module allows employees to register their attendance using their fingerprints, which is then stored in the database.

1.6 Project Contribution

The term "Project Contribution" refers to the expected successful outcome of the project. This section may be related to as the project's objectives. The table below shows the project contribution.

Table 1.4: Project Contribution

PS	PRQ	PO	PC	Project Contribution
PS1	PRQ1	PO1	PC1	The expected outcome of this project to make the rate of attendance cheating will also be minimised and reduced since a fingerprint would be used to mark and record the arrival time at the workplace
PS2	PRQ2	PO2		
PS3	PRQ3	PO3		
		PO4		

1.7 Report Organisation

For this section explain about report organization which a summary of each chapter within this report and shows the report arrangement of this project.

I. Chapter 1: Introduction

Explain more precisely the project's background as well as the previous research and study issues or problems that should be solved. This chapter also outline the project objectives, scope, and the expected outcome for this project.

II. Chapter 2: Literature Review

Review any research that related to Fingerprint Attendance System. In this chapter explains related works, proposed solution, and critical review of the current or existing problem.

III. Chapter 3: Methodology

Project analysis been developed in this chapter. Methodology has to describe in detail each phase or stages and must relate to the project. Project milestones also explained and created to monitor project's progress.

IV. Chapter 4: Design

This chapter describe the implementation of project including design overall project and system. The design including high-level design and database design.

V. Chapter 5: Implementation

This chapter explain in detail on software development environment setup and the expected result of the system using software code and logical procedure.

VI. Chapter 6: Testing

This chapter describe on the testing of the project software development. The developer and end user will test the project.

VII. Chapter 7: Conclusion

For this final chapter is to make a summarization about the project, explain the project limitation and the future works to improve the system.