POLITEKNIK MELAKA

SAFE DONATION BOX WITH ALERT

NAME	REGISTRATION NO
KHAIRUL IKRAM BIN ABDULLAH	11DJK22F1005

JABATAN KEJURUTERAAN ELEKTRIK

SEPTEMBER 2024

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KHAIRUL IKRAM BIN ABDULLAH	11DJK22F1005

This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electronic Engineering (Control)

JABATAN KEJURUTERAAN ELEKTRIK

SEPTEMBER 2024

CONFIRMATION OF THE PROJECT

The project report titled "**SAFE DONATION BOX WITH ALERT**" has been submitted, reviewed, and verified as a fulfills the conditions and requirements of the Project Writing as stipulated

Checked by:

Supervisor's name :

Supervisor's signature:

Date :

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 :

Name : **KHAIRUL IKRAM BIN ABDULLAH**

Registration Number : **11DJK22F1005**

Date : 3 SEPTEMBER 2024

DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : SAFE DONATION BOX WITH ALERT

SESSION: 1 2024/2025

1. I, **1. KHAIRUL IKRAM BIN ABDULLAH (11DJK22F1005)**

   is a final year student of **Diploma in Electronic Engineering (Control), Department of Electrical, Politeknik Melaka**, which is located at **No 2 Jalan PPM 10, Plaza Pandan Malim , 75250, Melaka**. (Hereinafter referred to as 'the Polytechnic').

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a) **KHAIRUL IKRAM BIN ABDULLAH**) . ....
(Identification card No: - [redacted])) **KHAIRUL IKRAM BIN ABDULLAH**

In front of me, Click here to enter text.) .....
(Click here to enter text.)) Click here to enter text.
As a project supervisor, on the date:

ACKNOWLEDGEMENTS

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I am highly indebted to my supervisor, Sir Dr. Azlan bin Muharam and my co. supervisor, Madam Suhaizila binti Sari for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my gratitude towards my parents & member of Politeknik Melaka for their kind co-operation and encouragement which help me in completion of this project. I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

ABSTRACT

The goal of the "Safe Box with Alert" project is to ensure the security and legitimacy of donation transactions. The system incorporates several components, including a buzzer alert that activates in real-time to signal any unauthorized access or alerts, a fingerprint sensor for donor authentication, and a keypad for input. By utilizing these technologies, the system ensures that only authorized users can complete transactions and provides instant auditory alerts, enhancing public confidence in donation procedures. For additional security, the project also uses an infrared sensor to monitor the surrounding environment. This not only increases the security of donation transactions but also enhances transparency and donor trust through timely alerts and authentication methods. This approach is especially beneficial for charitable organizations or fundraising events where integrity and security are of utmost importance.

ABSTRAK

Tujuan projek "Safe Donation Alert with IoT-Based" adalah untuk memastikan keselamatan dan kemudahan transaksi kulit melalui platform Internet of Things (IoT). Sistem ini mengintegrasikan beberapa komponen, seperti sensor cap jari untuk pengesanan dermal, pad input, dan modul GSM untuk penentuan tarikh dan masa berasaskan SMS. Dengan menggunakan teknologi ini, sistem meningkatkan kepercayaan dalam keseluruhan proses dengan memastikan bahawa hanya mereka yang benar-benar layak dapat menyelesaikan transaksi. Projek ini juga menggunakan sensor inframerah untuk memantau parameter fisiologi sebagai cara untuk memastikan integriti tisu, mencegah sebarang kebocoran semasa proses dermal. Selain meningkatkan keselamatan kulit, kaedah pengesahan dan amaran masa nyata juga menyumbang kepada ketelusan dan keyakinan dalam proses ini. Sistem ini amat berguna dalam acara pengumpulan dana atau organisasi kebajikan yang mengutamakan keselamatan dan integriti.

TABLE OF CONTENTS

CONFIRMATION OF THE PROJECT ..... **i**
DECLARATION OF ORIGINALITY AND OWNERSHIP ..... **iii**
ACKNOWLEDGEMENTS ..... **iv**
ABSTRACT ..... **v**
ABSTRAK ..... **vi**
TABLE OF CONTENTS ..... **vii**
LIST OF TABLES ..... **ix**
LIST OF FIGURES ..... **ix**
LIST OF SYMBOLS ..... **x**
LIST OF ABBREVIATIONS ..... **xii**
CHAPTER 1 1
INTRODUCTION 1
1.1 Introduction 1
1.2 Background Research 2
1.3 Problem Statement 2
1.4 Research Objectives 2
1.5 Scope of Research 3
1.6 Project Significance 3
1.7 Chapter Summary 3
CHAPTER 2 4
LITERATURE REVIEW 4
2.1 Introduction 4
2.2 Theft Cases in Public Communities 4
2.3 Control System 6
2.3.1 Microcontroller 7
2.3.2 Arduino 7
2.4 Chapter Summary 8
CHAPTER 3 10
RESEARCH METHODOLOGY 10
3.1 Introduction 10
3.2 Project Design and Overview. 10
3.2.1 Flowchart of the Project 2 11
3.2.2 Project Description 12
3.3 Project Hardware 12
3.3.1 Schematic Circuit 13
3.3.2 Description of Main Component 13
3.3.3 Circuit Operation 14
3.4 Project Software 15
3.4.1 Flowchart of the System 16
3.4.2 Description of Flowchart 16
3.5 Prototype Development 17
3.6 Sustainability Element in The Design Concept 18
3.7 Chapter Summary 18

CHAPTER 4 ..... **19**
RESULTS AND DISCUSSION **19**
4.1 Introduction **19**
4.2 Results and Analysis **20**
4.3 Discussion **20**
4.4 Chapter Summary **21**
CHAPTER 5 ..... **22**
CONCLUSION AND RECOMMENDATIONS **22**
5.1 Introduction **22**
5.2 Conclusion **22**
5.3 Suggestion for Future Work **23**
5.4 Chapter Summary **23**
CHAPTER 6 ..... **24**
PROJECT MANAGEMENT AND COSTING **24**
6.1 Introduction **24**
6.2 Gantt Chart and Activities of the Project **25**
6.3 Milestone **26**
6.4 Cost and Budgeting **27**
6.5 Chapter Summary **27**
REFERENCES **28**
APPENDICES **29**
APPENDIX A- DATA SHEET 29
APPENDIX B- PROGRAMMING 37
APPENDIX C- PROJECT MANUAL/PRODUCT CATALOGUE 50

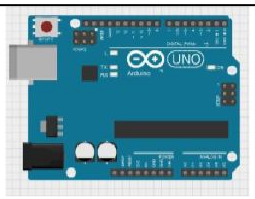
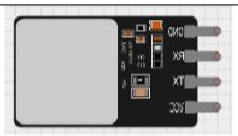
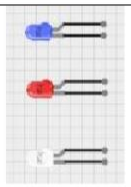
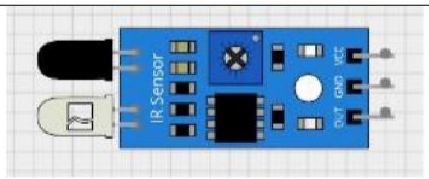
LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Research in IoT Field	5
4.1	Result and Analysis of the Function	19
6.1	List of Components and Materials	26

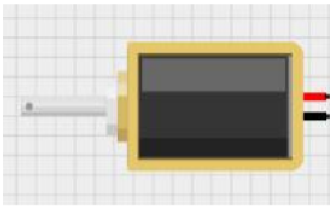
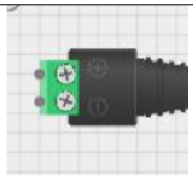
LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Block diagram of open loop and closed loop system	6
2.2	Controller used in Similar Project	7
3.1	Flow chart of Project 2	10
3.2	Methodology	11
3.3	Circuit Diagram	12
3.4	Flowchart of the system	15
3.5	Front and inner view of the project	16
6.1	Gantt Chart	24
6.2	Milestone	25

LIST OF SYMBOLS

No.	Symbols	Name
1.		Arduino UNO
2.		4x3 matrix keypad
3.		ADAFRUIT fingerprint sensor
4.		LED
5.		GSM Module
6.		Infrared Sensor

x

7.		Solenoid
8.		Relay
9.		12V adapter

LIST OF ABBREVIATIONS

No.	Abbreviation	Full name
1.	IoT	Internet of Things
2.	CPU	Central Processing Unit
3.	GSM	Global System for Mobile telecommunication

CHAPTER 1

INTRODUCTION

1.1 Introduction

The use of microcontroller platforms like Arduino in the quickly developing field of digital security has made it possible to create effective and affordable solutions to answer the growing concerns about institutional and personal safety. Many studies have looked into the use of Arduino-based security systems for a variety of purposes. For example, Passive Infrared (PIR) motion sensors have been used to monitor environments (Akinwumi et al., 2021), and fingerprint sensors and buzzer alarms have been used to improve door security (Manurung et al., 2021). As shown by Halim et al. (2019) in their work on Arduino-based integrated development environments (IDEs), these improvements not only enhance security measures but also provide flexible solutions through embedded systems.

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1.2 Background Research

Theft has been a common occurrence that happen in our daily life. Be it in community area or private residence, theft would always happen disregards how high the security is. In Malaysia, Kuala Lumpur and Selangor are among 14 states that are listed in the high number of reported cases of snatch theft.

Public lack of vigilance towards their belongings creates opportunities for criminals to commit crime. On the other hand, criminals are constantly seeking for the opportunity to target their victims when there is an opportunity to do so.(Kijanczuk, 2014)

1.3 Problem Statement

The issue of the box is being stolen in the middle of the night or when people does not pay attention to the box. This approach is to notify people about the stolen box. Furthermore, this technology is also able to solve the security issue of the donation. This will address the issue of the stolen money.

1.4 Research Objectives

The main objective of this project is to solve the theft of donation box and improve its security. More specifically the principle objective of this research are:

1. To design an unique system to ensure the security of the box.
2. To implement an alert based security system that notify other people
3. To evaluate the safety level of the product.

1.5 Scope of Research

1. This project is focusing on improving and tested with multiple fingerprint. Including the registered and unregistered fingerprint.
2. The emphasis is implementing alert based system.
3. The main controller is using Arduino UNO as it have a wide range of addon that can be added.

1.6 Project Significance

A safe box is a secure container designed to protect valuable items and important documents from theft, fire, or other types of damage. It provides a layer of security that can deter potential thieves and safeguard your belongings from accidents. However, an upgrade security would be needed in nowadays standards. It is also need to be at an affordable price.

1.7 Chapter Summary

On this chapter, it first discuss about the main problem that generates the idea of this project into fruition. After that, it is about discovering the main objectives of the project and the scope of research of this project.