

**FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
DUNGUN**

**LIBRARY MANAGEMENT SYSTEM USING RFID
TECHNOLOGY**

**MUHAMMAD KHAIRANI BIN ABDUL RAHMAN
SITI NOR AISAH BINTI MUHAMMAD
SITI NUR MUSLIHAH BINTI MUZAFFAR**

**SUPERVISOR:
FATIMAH NUR BINTI MUHD REDZWAN**

EXTENDED ABSTRACT

LIBRARY MANAGEMENT SYSTEM USING RFID TECHNOLOGY

Muhammad Khairani, Siti Nor Aisah, Siti Nur Muslihah, Fatimah Nur

Fakulti Kejuruteraan Elektrik

Universiti Teknologi MARA (UiTM) Cawangan Terengganu

Kampus Dungun 23000 Sura Hujung Terengganu

khairanirahman@gmail.com, aisahmuhammad9806@gmail.com, ctmuslihah98@gmail.com,

fatimahredzwan@gmail.com

Abstract - Radio Frequency Identification (RFID) is a new generation of Auto Identification and Data collection technology which helps to automate business processes and allows identification of large number of tagged objects like books using radio waves, RFID based library management system would allow fast transaction flow for the library and will prove immediate and long term benefits to library traceability and security. This project is developed to replace the conventional library management system that designed and extremely difficult to handle for bigger library. This system is provided an efficient for leading books using combination of RFID sensor ARDUINO. ARDUINO is used as a main microcontroller for to operate this whole management system. RFID will manage and control all the information of the library and the problems will be solved.

Keywords – ARDUINO, RFID.

I. INTRODUCTION

This smart management system provides an efficient lending process to students. They can borrow books using smart phone or self-serving counter. In libraries, item is taken out and returned for many times. Thus, the same RFID tag is re-used many times. The libraries across the globe started to use RFID to speed up the shelf check in/out processes, to control the theft and to ease the inventory control in library. The barcode technology is slowly getting replaced by the RFID technology. The RFID tag does not have to visible for detection. It can read even when it is embedded in an item, such as in the cardboard cover of a book or the packaging of product. The flow chart of this project is first, the students must enter ID number and password. The data will be sending to ARDUINO and it will read the given data and send to RFID sensor. So, the sensor that located at the door will not trigger the buzzer if the students pass through the sensor gate.

TABLE OF CONTENTS

CHAPTER	TITTLE	PAGE
	DECLARATION	2-3
	ACKNOWLEDGMENT	4
	EXTENDED ABSTRACT	5-7
	TABLE OF CONTENT	8-9
	LIST OF FIGUREN	10-11
	LIST OF TABLE	12
	LIST OF ABBREVIATIONS	13
1	INTRODUCTION	
	1.1 Background of Study	14-15
	1.2 Problem Statement	15-16
	1.3 Objectives	16
	1.4 Scope of Study	16
2	LITERATURE REVIEW	
	2.1 Theoretical Background	17
	2.1.1 A brief overview	18 - 22

3	METHODOLOGY	
	3.1 Methodology Process	23
	3.2 System Specification	23 - 25
	3.2.2 List of component and function on circuit	26 - 29
	3.2.3 Prototype sketch	30
	3.3 Circuit Testing and Troubleshooting	31
	3.4 PCB Lab Procedure	32-38
4	RESULT AND DISCUSSION	
	4.1 Software Simulation Result	39 - 42
	4.2 Hardware Implementation Result	43
	4.3 Data Analysis	44 - 46
	4.4 Discussion	47
5	CONCLUSION	
	5.1 Conclusion	48
	5.2 Recommendations	49
	REFERENCES	
	References	50