

**FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
PULAU PINANG**

FINAL REPORT:

SMART ELECTRONIC LETTER INDICATION BOX

JASMINE BENNY WAN

AUNI BATRISYA BINTI AZMI

SUPERVISOR:

SITI SOLEHAH MD RAMLI

This report is submitted to the Faculty of Electrical Engineering,

Universiti Teknologi MARA (UiTM).

In partial fulfillment of the requirement for the award of Diploma in Electrical Engineering.

This report is approved by:

Supervisor's name

(SUPERVISOR)

Date: 8/9/16

ABSTRACT

The 'Smart Electronic Letter Indication Box' is designed to ease the busy lifestyle and to implement daily activities in hopes for less effort by using advanced technologies exist in this ever-changing era. Based on statistics of couriers, at present, 15% of packages cannot be delivered on the first attempt, and in some residential areas up to 50% of deliveries fail. This is an opportunity to improve their service to couriers by proposing the idea of this project. Besides, this project is created because the lifestyle in the modern society is getting busier each day and is leading to the necessity of controlling the devices at home without consuming much time.

The 'Smart Electronic Letter Indication Box' is optimized using Proteus 8 Software and GSM (Global System for Mobile Communications) module. With the help of GSM network, a mobile can be used to be implemented in the working of this project as the user can be informed of the upcoming letter through messages as it is one of the features and top objective that came with the project. The design prototype of this project has been made and the output of this project is being displayed on the LCD (Liquid Crystal Display) and the messages is sent through the GSM SIM900 module as well as a buzzer is inserted to alert the user of the incoming letter.

ACKNOWLEDGEMENTS

We would like to take this space and the opportunity to express our deepest appreciation to all those who had provided us the possibility to complete this report. A very special gratitude we give to our final year project supervisor, Sir Haji Rahim and Madam SitiSolehah Md. Ramli, whose contribution in stimulating suggestions and encouragement, helped us to coordinate our project especially in writing this report as a requirement for the award of Diploma in Electrical Engineering.

Furthermore, we would also like to acknowledge with much appreciation to the crucial role of the staff of UniversitiTeknologi Mara PermatangPauh (UiTMPP), who gave the permission to use all required equipment and the necessary material to complete this project entitled 'Smart Electronic Letter Indication Box'.

A special thanks goes to our friends who helped us during the process of completing this project. Last but not least, many thanks go to our parents whose have invested their full effort in supporting us in achieving the goal. We too, have the need to appreciate the guidance given by other lecturer as well as the panels especially in our project presentation that has improved our presentation skills thanks to their comment and advices.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	i
ABSTRACT	ii
LIST OF FIGURES	iii
LIST OF TABLES	v
LIST OF ABBREVIATION	vi
CHAPTER 1 INTRODUCTION	
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Objective of Research	2
1.4 Scope of Study	3
CHAPTER 2 MATERIALS AND METHOD	
2.1 Methodology	4
2.1.1 System Diagram	4
2.1.2 Block Diagram	5
2.1.3 Flow Chart of System	6
2.2 Equipment and Component	7
2.2.1 Arduino UNO	7
2.2.2 GSM Module Sim900	8
2.2.3 Infrared Module	9
	10
CHAPTER 3 CIRCUIT DESIGN AND OPERATIONS	
3.1 Schematic Diagram	11
3.2 Circuit Operation	12
3.2.1 Input Circuitry	12
3.2.2 Output Circuitry	13
CHAPTER 4 RESULT AND DISCUSSION	
4.1 Software Simulation Result	15
4.2 Serial Communication	18