

# COIN SORTER

This thesis is presented as a partial fulfilment for the award of the  
Bachelor in Electrical Engineering (Hons.)  
UNIVERSITI TEKNOLOGI MARA

NORMASLIZA BINTI AD FAUZI  
Faculty of Electrical Engineering  
UNIVERSITI TEKNOLOGI MARA  
40450 SHAH ALAM  
SELANGOR DARUL EHSAN  
November 2005

## ACKNOWLEDGEMENT

The completion of this project marks the end of an invaluable learning experience for me. I would like to extend my gratitude to all those who helped make throughout the journey.

I am indebted to my supervisor Assoc. Prof. Mahmud Ibrahim and Dr Ahmad Maliki Omar; they had guided me over a year in the realized of my final project. I am grateful for their enthusiasm and constructive criticism.

I want to thank to my parent and to all my friends, for their tremendous support. Sincerely no words could be said for the things that you all have done for me. I am greatly indebted for all the favors and supports. Thank you and May ALLAH Bless you.

## ABSTRACT

Sorting is used to reorder a list into sequence suitable for further processing or searching. Sorting facilitate easier to understanding of data and increasing the speed of finding a desired datum. Sorting bulk material entails grouping into a desired group based on their physical properties. This project is designing a Coin Sorter that sort different coins dominations and display the total amount of coins and their values.. The sorter is designed to sort coins using their difference of diameters. The sorting and totally the sum of the value of the coins is an electro mechanical process controlled by a microcontroller, known as Programmable Interface Controller (PIC). The implementation using microcontroller is easier to design and modify, giving cheap, and robust design.

# TABLE OF CONTENTS

<b>DECLARATION</b>	<b>ii</b>
<b>DEDICATION</b>	<b>Hi</b>
<b>ACKNOWLEDGEMENT</b>	<b>iv</b>
<b>ABSTRACT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF FIGURES</b>	<b>ix</b>
<b>LIST OF TABLES</b>	<b>xi</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xii</b>

CHAPTER	Page
1.0 INTRODUCTION	
1.1 Background	1
1.1.1 History of Vending Machine	1
1.1.2 History of Cash Register	2
1.1.3 Scenario of Coin Sorter Machine	3
1.2 Scope of Project	3
1.3 Organization of Thesis	5
2.0 SYSTEM DESIGN AND METHODOLOGY	
2.1 Project Implementations	7
2.2 Design Procedure	7
2.3 Methodology	8
2.4 Design Operation of the Sorter	9

# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

In the year 1966, one company known as SCAN COIN was founded in Malmö, Sweden. It all started when three entrepreneurs came together with an idea about how to make a superior coin sorting machine. Each year the company broadened its product range to cover the whole spectrum of money processing equipment and system.

The 'Double Sorting' system technology first developed in the 1960's was further developed and refined over a 20 year period and has been in use until recently. The new range of coin counting and sorting equipment was launched in 1988, based on a patented electronic coin recognition technology with unsurpassed accuracy. This new coin recognition technology also paved the way for new innovations like the first self service coin counters on the market.

#### 1.1.1 History of Vending Machine

A vending machine is a machine that dispenses merchandise when a customer deposits money sufficient to purchase the desired item as opposed to a shop, where personnel is required for every purchase.

Vending or "automatic retailing" as it is increasingly known has a long history. The Greek mathematician Hero seems to have got the ball rolling in 215BC, when he invented a machine to vend holy water in Egyptian temples. The first commercial coin-operated vending machines were