

UNIVERSITI TEKNOLOGI MARA

**MINI CONVEYOR BELT USING
GENEVA MECHANISM**

**MUHAMMAD HARIZ LUQMAN BIN MOHD
HUSZEINE**

**Diploma
(Mechanical Engineering)**

College of Engineering

Feb 2023

ABSTRACT

A conveyor belt is the carrying medium of a belt conveyor system. A belt conveyor system is one of many types of conveyor systems. A belt conveyor system consists of two or more pulleys, with an endless loop of carrying medium the conveyor belt that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler pulley. In this project, conveyer belt will take place in supermarket. Main problem with current design until this conveyor belt project come out. This is because these day many people such as women, kids and old people are having a hard time dealing with heavy things especially at the supermarket. Thus, this conveyor belt project has come out because to make sure these people did not have to suffer from lifting heavy objects. The main objective of this project is to move objects from one location to another location. Expectation of this project is maintain good control of conveyor belt and also save energy and time.

ACKNOWLEDGEMENT

Firstly, I wish to thank to Allah SWT for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Suhadiyana Binti Hanapi.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdulilah.

TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
CHAPTER ONE : INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Objectives	2
1.4 Scope of Study	2-3
1.5 Significance of Study	3
CHAPTER TWO : LITERATURE REVIEW	4
2.1 Benchmarking/Comparison with Available Products	4-6
2.2 Related Manufacturing Process	7
2.3 Sustainability/Ergonomic Related Items	7
2.4 Patent and Intellectual Properties	7-8
2.5 Summary of Literature	8-9
CHAPTER THREE : METHODOLOGY	10
3.1 Overall Process Flow	10-11
3.2 Detail Drawing	12-17
3.3 Engineering Calculation and Analysis	18-22
3.4 Bill of Materials	23

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

A conveyor belt is the carrying medium of a belt conveyor system. A belt conveyor system is one of many types of conveyor systems. A belt conveyor system consists of two or more pulleys, with an endless loop of carrying medium the conveyor belt that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler pulley. There are two main industrial classes of belt conveyors. Those in general material handling such as those moving boxes along inside a factory and bulk material handling such as those used to transport large volumes of resources and agricultural materials, such as grain, salt, coal, ore, sand, overburden and more [1].

Belt conveyors are universally used in industrial and supermarket settings and in packaging and assembling units. They can help in transportation of regular and irregularly shaped items from one point to another regardless of their weight. The items can travel in a horizontal, declined or inclined manner, depending on the type of belt conveyor used. They are placed on the surface of the conveyor and transported from one point to the other through continuous, non-stop movement.

The belt conveyor comprises of a belt that rests on top of a smooth metal bed or rollers. When the distance is long, belt conveyors with rollers are the most suitable option, as the rollers help to reduce friction. It is not necessary for belt conveyors to be straight. They also can turn corners with a special attachment. In such a case, the shape of the belt for the corners will be concentric, to facilitate smooth movement around the corners [2].