

UNIVERSITI TEKNOLOGI MARA

**TO DESIGN AND FABRICATE OF AN
INNOVATIVE MULTIPURPOSE
HAND TRUCK**

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ABSTRACT

The study of manufacturing is necessary to conduct this project to make sure that students understand about process that should be done for this project. The project is about designing and fabricating a Multipurpose Hand Truck. This project aimed to help manage loads without damaging the body and lower the risk of injury. Other than that, the purpose of this project are also to save money, time and storage space. The steps taken to achieve this goal included, sketching the product design, creating a CAD model of the design, and machining process such as grinding, drilling and cutting by considering ergonomic factors so that the users can use it easily. At the conclusion of the project, the multipurpose hand truck can make the users feel comfortable and easier to use it in daily life.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

In today's life, people may have to transport many loads and objects of numerous quantities either at home or working place. There should be a utility that can help to carry the goods comfortably without forcing the user to apply ore forces [1]. Using manual effort may cause injuries and fatalities of workers which is not a healthy work environment. So, manual handling support such as hand truck and trolley are dominant devices to help in reducing hazardous duties [2]. The purpose of this project is to develop successful design, fabrication and comparative testing of a multipurpose hand truck so that the loads can be lifted from one place to another easily. The design of the multipurpose hand truck is a combination of an upright hand truck for stacking and moving objects in the vertical position and a platform truck for transporting goods in the horizontal position platform.

1.2 Problem Statement

Nowadays, people often have a problem while using the existing hand truck in their daily life. Delivery workers that use hand truck commonly experience musculoskeletal stress injuries and particularly back injuries. This happens when the workers want to move the hand truck that has been loaded, they need to tilt the hand truck. This will apply more pressure to the back of the body and cause long term injury to the spine. Because of this, the workers cannot come to finish their works comfortably without injuring theirs body.

Another primary problem with hand truck is that need to spend a lot of money just to buy more than one hand truck with a different function and characteristic to lift the different sizes of the product. For example, when they want to raise a bigger product, they need to buy another hand truck with a large platform space.

In addition, the workers that use a hand truck always waste their time because