UNIVERSITI TEKNOLOGI MARA

DESIGN AND ANALYSIS OF AN ERGONOMIC PORTABLE LIFTING DEVICE

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Dissertation submitted in partial fulfillment
of the requirements for the degree of
Diploma
(Mechanical Engineering)

College of Engineering

Jul 2023

ABSTRACT

The portable lifting device is inspired by the principle of the lever Lifting devices are designed to hoist, lower, and transport heavy pieces of machinery, equipment, or other materials around a given workstation. As such, using a portable lifting device enables more fluid, streamlined movement. Instead of having one or more employees shift heavy weight between them and potentially fumble the item being carried, a designated device can easily move items from one location to the next at the touch of a button. The objective of creating this product is to save labour and time. In addition, the portable lifting device also has innovations on the wheelbase, 4 rubber wheels were added to the base to give a smooth movement. The portable lifting device design is suitable for all types of material because our project can be adjusted according to the size of the material to be moved. The research rate obtained from the survey stated that is difficult to move heavy furniture abed it required two people or more. Most respondents agree that a “portable lifting device” is suitable to use at home, warehouses and in factories.

ACKNOWLEDGEMENT

Firstly, I wish to thank God 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, Dr Kamariah Binti Md Isa.

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.

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

In life, machines have helped us in many ways such as building, producing materials, and even transporting heavy items from place to place. Machines really have been a great help for us in achieving a greater future and a comfortable life. We often see a machine that helps people carry a bigger item or material such as a crane or elevator.

They are most likely seen in work sites that are mainly used for building and maintaining a bigger building. They are also seen in a workshop such as a car scissors lift. These machines really help construction workers, mechanics, etc finish their job earlier and easier. Even so, is this lift available to help a housewife and old people carrying their own heavy items and objects around the house? The answer is they don't.

The current solution for this issue is there is an actual machine that helps people move around things inside their house. They are called home trolley lifts. This machine is really expensive. One unit may cost around RM2400-RM4000. The material has been used also are really expensive. They also are really inconvenient at bringing slippery items and round items because they have no rail on the side to keep the item stay put on the platform of the trolley.

The aim of this project is to make a dependable home trolley lift that can be used without any power supply and at an affordable price. The design will be conducted by referring to the standard engineering design process and the chosen concept will be rendered and modeled using Solid Works 2021. A prototype will be fabricated as a roof of concept by the end of the Final Year of Project 2. By changing small aspects in an already existing machine, the product shall provide the user with desirable outcomes.