

UNIVERSITI TEKNOLOGI MARA

**MECHANICAL AND DESIGN OF
TROLLEY STAIR CLIMBER**

MUHAMAD HUSAIN BIN MOHD JUZAILA

**Diploma
(Mechanical Engineering)**

College of Engineering

Feb 2023

ABSTRACT

The Mechanical and Design of Trolley Stair Climber is a newly designed product based on people's ability to afford a trolley stair climber. Due to the challenges, the goal of this project is to create a trolley stair climber that can lift and carry more than one type of load. In this project, a trolley stair climber that can also lift and carry persons in wheelchairs will be designed, analyzed, and fabricated. The Mechanical design of Trolley Stair Climber is a product that has supports to carry a person in a wheelchair while going up and down stairs. In conclusion, this product will benefit the lower-income group and people with disabilities.

ACKNOWLEDGEMENT

Firstly, I want to acknowledge and sincerely thank my supervisor, Madam Nur Kamarliah binti Kamardin for enabling me to complete this assignment. I was able to complete all of my project's writing stages because of her direction and assistance.

Additionally, I would want to express my sincere gratitude to my family for their continuous assistance and understanding as I conducted my research and wrote my thesis. Your prayers for me have kept me going so far.

Finally, I want to express my gratitude to Allah SWT for guiding me through all of the challenges. Every day, I have experienced your guidance. I was able to complete my diploma thanks to you.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

A hand trolley is a small moving tool used to convey heavy objects from one location to another. It is a fairly typical instrument that is utilized by numerous businesses that convey physical goods. Stock workers who organize and replenish inventory in retail businesses frequently utilize hand trolleys, which are sometimes known as hand trucks or dollies. While used correctly, trolleys can shield users from back difficulties and other health issues that can arise when lifting large objects [1].

Nowadays, trolleys have been modified into stair climbing trolleys. Compared to an ordinary trolley, this stair climbing trolley can make it easier for users to transport things from one place to another easily. The stair climbing trolley is equipped with revolving wheels or tracks that allow it to be pushed or hauled up or down stairs or a set of steps. It also comes in wheel, track, push arm, and walker variations and can be manually or electrically operated.

The reason for this research is to produce a design where the trolley will be a prototype stair climbing trolley with two functions. The new design will be a combination of two functions. The improvement will help the user to be able to transport various types of loads. For example, people in wheelchairs, furniture and many more.

1.2 Problem Statement

A trolley stair climber is a perfect product for people to carry up and down on the staircase. In day-to-daily life, it is very useful for carrying heavy loads such as pieces of furniture, household appliances, people in wheelchairs and many more. Since there are many types of heavy loads, each of them has its own type of trolley stair climber. Therefore, a problem occurs where people need to buy more than one type of trolley stair climber to carry something.