

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATION OF  
PROTOTYPE OF HYDRAULIC LIFT  
TROLLEY**

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## **ABSTRACT**

The efficient movement of trolleys in industrial and warehouse settings poses challenges, particularly in tight spaces where trolleys nowadays struggle to maneuver effectively. To overcome these challenges, this project focuses on the development of a trolley equipped with a lifting mechanism. The problem statement revolves around the need for a versatile and efficient material handling solution that can go through the narrow spaces while also lifting of heavy objects. The objectives of this project include the project aims to integrate a hydraulic lifting mechanism into the trolley to facilitate the lifting of heavy objects within its container. The methodology involves the design and fabrication of the trolley, including the development of the connecting rod in lifting mechanism and the integration of the hydraulic lifting system. Extensive testing is conducted to evaluate the performance and reliability of the trolley under various operating conditions. Expected result demonstrate that the trolley will achieves its objectives by providing enhanced maneuverability and lifting capabilities compared to traditional trolleys. The hydraulic lifting system effectively lifts heavy loads with ease. In conclusion, the developed trolley represents a significant advancement in material handling technology, offering a versatile and efficient solution for industrial and warehouse applications.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of Study**

The warehouse industry in Malaysia such as J&T, Shopee and Lazada is one of the most important industry nowadays as the continuous thriving of online shopping since MCO in 2020 during COVID-19 until now [1]. These hubs have the responsibility of storing and managing customers' parcels. Lately, there are a lot of negative feedbacks from the customers complaining their stuff delivered in the bad conditions. This happens because of the bad parcel handling process [2].

In response to overcome this occurring happening again, a solution has been conceived: a hydraulic lift trolley with connecting rod. This project aims to increase the efficiency of maneuverability of the trolley, also minimizing the human energy during the stacking and arranging processes. By integrating the lifting mechanism, the movement agility of the trolley will increase especially when turning in a narrow space [3].

The lift trolley powered by lifting mechanism represents a significant advancement in the logistic industries, offering a solution to the challenges faced in parcel handling process. This innovative trolley addresses the concerns raised by customers regarding the condition of their delivered parcels. Furthermore, by streamlining operations and ensuring timely delivery with parcels in good condition, the hydraulic lift trolley contributes to the overall competitiveness of the warehouse industry in Malaysia [4], [5].