

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATION OF  
AUTOMATED MINI FORKLIFT**

**FATIN NABILA BINTI MOHD ZAKI**

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## **ABSTRACT**

In this project, an attempt has been made to design and fabricate an automated mini forklift which helps human to lift loads from one place to a higher place. The main purpose of designing an automated mini forklift is to operate it on an automated basis without requiring any human power to lift it. Forklifts are widely used in industry, so this initial target for this project will lead to industry people. The mini forklift uses a linear actuator to lift loads and a motor to lift weights. The lifting mechanism is attached to a 4-wheel drive frame chassis, powerful enough to serve as a counterweight and support for the frame.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

Nowadays, in the age of advance in technology IR 4.0, machines are no longer a new thing in factories. Forklift is a common industrial vehicle that is used to lift or move a cargo in storage facilities or warehouse. It has also been widely used in the places such as airports, harbours, rail stations etc. It is powered by either combustion engine with diesel, gas or gasoline or electric battery. It has a forked platform attached to the front of the vehicle that can lift and move the cargo through hydraulic and electric lifting system. The power source of the industrial vehicle is always a hot topic because combustion engine with gas or diesel will produce toxic emissions such as carbon monoxide, hydrocarbon etc. The type of power source used will limit the usage of forklift in different areas. The safety of the operators always becomes a concern as they are exposing to harmful environment when the forklift is powered by combustion engine. With the development of the electronic technology, forklift is designed more towards electric powered to prevent pollution of the environment and lower the cost of the forklifts.

Conventional forklift requires operator to drive and control the forklift. By referring to the Bureau of Labour and Statistics, it reports that around 100 operators are killed in forklift accidents and around 20,000 workers are seriously injured every year. Operating a forklift is seem an easy task but it is never a safe job. The most common forklift accidents are hitting or running over a pedestrian, knocking off a pallet, tipping or damaging racking and forklift overturns.