# UNIVERSITI TEKNOLOGI MARA

# PORTABLE AUTOMATIC WRAPPING MACHINE

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# ABSTRACT

Existing wrapping machines provide issues for small-scale producers and distributors because of their high cost, enormous size, and lack of portability. The goal of this project is to design and build a low-cost, portable automatic wrapping machine to address these challenges. The machine was created by gathering data from existing products, assessing essential design components, and utilizing CAD software for design optimization. The manufacturing process included cutting, welding, and assembling of lightweight yet robust components to ensure affordability and ease of movement. The resulting prototype has a compact form with a smaller footprint, improved portability with wheels, and a cheaper production cost of RM 555, making it affordable for small firms. Testing confirmed the machine's ability to efficiently wrap items, with a cycle time of 15-25 seconds. The equipment can support goods weighing up to 30 kg and operates ergonomically. This study met its aims by proposing a viable alternative to standard wrapping machines that is affordable, portable, and efficient. Future enhancements, such as the addition of a film height detector and a gearbox, could improve functionality and adaptability to a broader set of applications.

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# INTRODUCTION

## 1.1 Background of Study

As we get closer looking into the industry nowadays, the small factory and distributor of product had difficulty in the wrapping process since it's the most crucial process where the product will be delivered to the customer. Usually, plastic wraps are used to wrap it around the product where the product will be placed on the platform of the wrapping machine and the product will be wrapped by the plastic wrap on the machine tightly [15]. By doing this process it will give more safety for the product from any possible accident that occur such as the product has been damaged before it reaches the customer. If this accident occurs regularly, it will become one big problem for the distributor and that is why they bought the wrapping machine to avoid this problem from happening.

But as we know, there are some problems that will be faced by the small distributor and factory. One of the problems that will happen is the cost of wrapping machine is way too high for the small distributor and factory [13]. Other than that, the size of the wrapping machine usually comes in a big size where it will effectively on the working space for them [20]. Lastly, when the wrapping machine comes in a big size, for sure the weight of the machine will be heavy and not easy to move around in terms of portability. That is why in this project, the portable automatic wrapping machine has been designed and fabricated to help the small factory and distributor to overcome the problem that will happen if they do not have this machine.

## 1.2 Problem Statement

The small factory and distributor will be faced with these problems when they wanted to buy this machine on the market. Firstly, the cost of wrapping machines in market nowadays is way too expensive for them. It is because they only produce small amounts of product to compare with the bigger factory and distributor. That is why these machines nowadays in the market is not suitable for them in terms of cost.