

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN, ANALYSIS &  
FABRICATION OF A VEGETABLE  
CUTTING MACHINE**

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## **ABSTRACT**

A vegetable cutting machine is a product developed due to the time consumption and human effort required in traditional manual cutting methods. The low productivity of vegetable cutting due to the high time consumption has led to this project which aims to fabricate an automated vegetable cutter machine that can cut and slice different types of vegetables more efficiently in less time. This project intends to design, analyse, and fabricate a vegetable cutting machine that is more time efficient, portable, and affordable compared to existing methods of vegetable cutting. The expected outcome of this project is a product that is suitably sized for household kitchens and can shorten the process of vegetable cutting using a direct current (DC) motor. In conclusion, this vegetable cutting machine will be efficient, consume less time and energy, and suitably sized which will benefit middle income families and small businesses.

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# INTRODUCTION

## 1.1 Background of Study

Vegetables are usually defined as the edible parts of an herbaceous plant that are grown to be eaten as part of a meal [1]. The advent of automation in the early 19th Century has caused the production of vegetables to increase in order to match the growing population [2]. The preparation of these vegetables before meals has since become an important aspect of society. Vegetables are usually prepared in larger amounts compared to other ingredients and this consumes a lot of time. The practice of manually cutting vegetables is still very prevalent in many institutions such as domestic kitchens and small businesses. The difficulties that come with this practice is the risk of contamination, lack of time and manpower needed. These institutions also cannot afford to purchase industrial vegetable cutters that are high cost. Therefore, an alternative system that is affordable and allows smaller institutions to automate their cutting process while preventing contamination of their product, maintaining the efficiency of cutting and ensuring the safety of the user is proposed.

## 1.2 Problem Statement

The process of manually cutting vegetables is time and energy consuming and it also may cause injuries whereby most people are at risk of cutting themselves with their knives while chopping the vegetables. Most automatic vegetable chopping machines that are on the market are designed for industrial use and thus unaffordable for most prospective consumers. Lastly, the lengthy time taken to chop a large quantity of vegetables may cause the vegetables to be contaminated leading to foodborne diseases.

## 1.3 Objectives

The main objectives of this project are:

- a) To design and analyse an automatic vegetable cutting machine.
- b) To fabricate an affordable and functional automatic vegetable cutting machine.