

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATION OF  
AUTOMATIC FOODSTUFF CUTTER**

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## **ABSTRACT**

Food cutters designed specifically for potatoes are devices that slice potatoes from fresh potatoes. It is now a competitive alternative to the standard cutting method in the modern world. This method involves fewer processing steps and is more dependable in terms of processing time, cleanliness, and safety [1]. This thesis presents a mobile model of the process of creating, producing, and analysis food cutting instruments, particularly potatoes. The target market and potential clients include occupied urban areas, restaurant employees, and Small and Medium Businesses (SMEs). This initiative aims to create machines that are less expensive and easier to automate than those already in use in the industry. The utility of fabrication and the availability of materials are taken into consideration when building machine prototypes. The prototype's final testing and performance, including the quantity of potatoes that can be chopped and the prototype's effectiveness, are measured. In order to compete with other products on the market, the design is thought to be able to chop a high number of potatoes while serving as a user-friendly kitchen equipment.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

One of the most widely cultivated tubers in the world and the only one used as a significant food crop is the potato (*Solanum tuberosum*). In 2014, 0.39 billion tones potatoes were produced worldwide. China, the world's largest producer of potatoes, produced 96.1 million tones (or 24.64 percent of global production) in 2014.

The metabolic makeup of crop plants determines their nutritional condition, which is crucial for human health. In addition to vitamins and minerals, potatoes also contain a variety of phytochemicals, such as carotenoids and organic phenolic compounds. In addition to 620 mg of potassium, 0.2 mg of vitamin B6, 27 mg of vitamin C, thiamin, riboflavin, folate, niacin, magnesium, phosphorus, iron, and zinc are all present in trace amounts in a medium-sized potato (150 g) with skin. The starch-based carbohydrates found in potatoes (26 g in a medium potato) are what make them so popular. The enzymes in the stomach and small intestine are unable to break down a small but considerable percentage of this starch, and it passes through to the large intestine undigested. The physiological effects and health advantages of this resistant starch are comparable to those of fiber. It adds mass, protects against colon cancer, enhances insulin sensitivity and glucose tolerance, lowers plasma cholesterol and triglyceride levels, boosts satiety, and may even prevent fat storage.

Mechanical operations including peeling, chopping, and slicing damage plant tissue and release intracellular components that lead to enzymatic or microbiological activity, resulting in rapid quality degradation and a reduced shelf life.

### 1.2 Problem Statement

As is well known, ancient ways are still used today to chop potatoes into pieces, such as using a hand. The primary issue is poor hygiene, which allows bacteria from the