

UNIVERSITI TEKNOLOGI MARA

**DESIGN AND FABRICATION OF
ADVANCED AUTOMATIC
COCONUT SCRAPING MACHINE**

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ABSTRACT

The introduction establishes the context by highlighting the prevalence of coconuts in culinary activities, as well as the labor-intensive nature of hand coconut scraping. Recognizing the need for an efficient and cost-effective solution, the proposal proposes an automated coconut scraping machine. This equipment intends to simplify the extraction process by substituting manual labor with motorized scraping blades or grates, catering to both residential and industrial applications. Scraping speed, safety precautions, ease of maintenance, and adaptation to various coconut sizes and varieties are all important design concerns. Furthermore, advances in automation technology are expected to improve the performance and utility of such equipment. The issue statement outlines the inefficiencies and safety dangers associated with manual coconut scraping, emphasizing the urgent need for new solutions to fulfill rising worldwide demand for coconut-based goods. Existing machines frequently fall short in terms of efficiency, dependability, and adaptability, emphasizing the need for a more complex and automated approach. The project's goals are straightforward: streamline scraping operations for higher productivity and quality, apply automation to decrease operator participation and improve efficiency, and mitigate safety issues connected with coconut scraping. The presented methodologies focus performance parameters such as scraping speed, extraction efficiency, and product quality, while also employing electric power for automation and maintaining space efficiency in design. The expected outcomes are centered on the machine's functioning, meat extraction efficiency, handling of varied coconut sizes, and safety compliance. The ultimate goal is to greatly cut processing time, enhance production output, and create a safe working environment, therefore modernizing coconut processing methods.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Coconut is frequently employed in the food industry, both in industrial and domestic settings. Coconuts are more than simply a fruit in tropical locations across the world, they are an important element in culinary traditions and daily living. Scraping coconuts is a time consuming process. Manually doing so needs a significant amount of effort and is not cost effective. So we propose building an automated coconut scraping machine. It produces fine scraped coconut as requested for meal preparation with no physical effort. It accomplishes this task in a fraction of time.

A coconut scraping machine automates the process of extracting the coconut kernel from its hard shell. It usually comprises of a motorized machine outfitted with scraping blades or grates to remove the coconut flesh. These devices are utilized in a variety of contexts, including small-scale domestic kitchens and professional food processing plants where coconuts are a major component. They intend to simplify the labor-intensive procedure of physically scraping coconuts while maintaining uniformity and efficiency. Key design concerns for such a machine are scraping speed and efficiency, safety measures to prevent accidents, simplicity of maintenance, and adaptation to various coconut sizes and kinds. Furthermore, advances in automation technology can improve the performance and usefulness of coconut scraping machines.

1.2 Problem Statement

This product has been accessible on the Malaysian market. However, there are several issues that might arise, particularly in terms of safety and energy consumption while grating coconuts. In terms of energy, the user must expend effort holding the coconut as the grater rotates. It takes time to complete. So the user must keep the coconut till it is finished. Furthermore, in terms of safety, the user's hand is quite near to the grater. The grater's surface is extremely sharp, and it revolves at an average speed of 1200-1400 rpm. As a result, there is a considerable danger of accident. Furthermore, the