

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF A FOOD
WASTE SHREDDER MACHINE**

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ABSTRACT

Waste can be divided into two types, which are organic and inorganic waste. Organic waste is all types of wet waste that we can make a compost such as vegetable waste while the inorganic waste cannot be compost, it has some market value and can shred into different double shaft shredder or chopper shredder. Food waste is a significant environmental issue, causing 8% of greenhouse gases annually and contributing to one-third of all human-generated greenhouse gas emissions. Thus, composting food waste is an essential component of a sustainable environment, reducing pollution, and minimizing landfill space. Also, it is an eco-friendly method of reducing food waste over time. Therefore, shredder machine play an important role in food waste processing by reducing the size of waste materials. Moreover, shredder machine can speed up decomposition, enhance biogas quality, and decrease transportation costs. Thus, this project aims to create a low-cost food waste shredder that is lightweight, portable, and user-friendly. The food waste shredder can used in the house holds for shredding, which is to cuts their organic waste into small particle and reduce volume of waste. The process to complete this project is by designing the product in SolidWorks and doing manufacturing processes such as cutting, bending, and welding process. In conclusion, the product can be an encouragement to Malaysian to start compost because this machine can help the user to save time and energy.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Nowadays, people think tossing away uneaten food may appear like meagre damage to the planet when compared to other issues, but it is just as harmful. When the food was thrown away, the precious resources that went into producing the food were also thrown away. Which is the use of land and natural resources, the social cost to the environment, and our biodiversity. Food waste produces 8% of greenhouse gases annually and makes up one-third of all greenhouse gas emissions caused by humans. Given these figures, there is an urgent need to lessen this environmental impact, which is composting food waste. Furthermore, less food loss and waste would lead to make efficient land use and better management of water resources, which would positively impact climate change and livelihoods.

Thus, food waste processing is an essential component of a sustainable environment, and it plays a critical role in conserving resources, reducing pollution, and minimizing landfill space. Food waste can refer to any edible material that is discarded, lost, or uneaten throughout various stages of the supply chain, from production and processing to retail and consumption. According to the Food and Agriculture Organization (FAO) of the United Nations, roughly one-third of all food produced for human consumption is wasted, which amounts to approximately 1.3 billion tons per year. This waste has significant environmental, economic, and social consequences, making it essential to develop effective strategies for its management and reduction. [1]

Even though, some food waste is unavoidable, such as vegetable peels and leftovers, the effects can still be reduced by compost. It is a biodegradation process which the organic matter such as leftovers and leaves decompose into soil. The soil could be used for gardens and farms. Composting is one of the eco-friendly methods of reducing food waste over time. Therefore, the industrial shredders play a crucial role in food waste processing by reducing the size of waste materials, which allows for more efficient handling, transportation, and disposal. Thus, a food waste shredder can downsize organic waste to a desired size. It also can implement in food waste recycling