

UNIVERSITI TEKNOLOGI MARA

**PORTABLE PLASTIC SHREDDER
MACHINE**

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ABSTRACT

Plastic pollution has become a worldwide issue due to poor plastic waste disposal management. The machines available for recycling used plastics are very expensive. They pack this waste and deliver it to local waste processing plants. As a result, the packaging and transportation processes are costly. So, this project aims to design a portable plastic shredder machine to process plastic waste as cheaply as possible by cutting where it is made to reduce labor work. As a result, costs are reduced. A cutting machine cuts large solid material objects into smaller pieces volume or small chunks. This project describes the experimentation with a plastic bottle-cutting machine to examine the machine's mechanism. A plastic shredder machine is a preliminary machine used to cut plastic waste into small pieces before converting it into valuable products and an analysis of the instrument used in the machine. This recycling process aims to reduce the amount of plastic waste and turn it into a valuable commodity.

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CHAPTER ONE INTRODUCTION

1.1 Background of Study

Plastic has become something that cannot be part of our daily lives since its introduction over a hundred years ago. Plastic is now one of the most popularly used materials. Plastic has undeniable advantages. It is inexpensive, lightweight, and simple to shape. Plastic is now widely used in food and beverage packaging, textiles, automotive, manufacturing, and medical devices such as surgical equipment, drips, and pill blister packs. There are classified into five types which are polyethylene terephthalate (PET), high-density polyethylene (HDPE), polyvinylchloride (PVC), polypropylene (PP), and low-density polyethylene (LDPE)[1]. The massive amounts of these plastic categories that are currently being marketed will eventually find their way to the waste disposal sites. For example, plastic waste is a component of the solid waste stream, as is polyethylene terephthalate (PET). Plastic bottles are made from PET and various other plastic products. They are non-biodegradable and can remain unchanged on Earth for up to 4500 years, causing harm to our lands, streams, and drainage systems [1]. The importance of plastic recycling, on the other hand, has not gone unnoticed; independent businesses, non-governmental organizations, and local communities are being forced to make their efforts to recycle plastic wherever possible. Plastic recycling, also known as reprocessing, is how plastic waste that would otherwise become solid waste is collected, separated, processed, and returned to use. A waste plastic shredder is a machine that shreds used plastic bottles into smaller particle sizes to improve their portability, ease of use, and readiness for use in another new product.