UNIVERSITI TEKNOLOGI MARA

DESIGN AND FABRICATION OF TABLE ALUMINUM CANS CRUSHER

MUHAMMAD AKMAL BIN ASMAR

Dissertation submitted in partial fulfillment of the requirements for the degree of **Diploma** (Mechanical Engineering)

College of Engineering

Feb 2023

ABSTRACT

Human population is rapidly expanding. Every day, more products are consumed. As a result, the amount of waste produced is also expanding tremendously. The main downside is that it takes up more space, which is already a major issue leading to pollution. The main goal of this project is to create a more cost-effective product that may be used in our daily lives. The purpose of a can crusher is to recycle empty cans by reducing their volume and then physically operating on those crushed cans to convert them into new ones. Wasted cans take up a lot of space and volume in different stores and restaurants, therefore this technology can be employed on a large scale as well. Can crushers of this type would be quite useful and could be transported anywhere. Drilling, welding, bending, and cutting are examples of machine design and production methods that are studied and applied in fabrication. For better visualization, design and analysis are completed, and errors are removed while repairs are implemented. Such systems are quite beneficial to our environment.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Nurrul Amilin Zainal Abidin

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdulilah.

TABLE OF CONTENTS

CONFIRMATION BY SUPERVISOR AUTHOR'S DECLARATION ABSTRACT ACKNOWLEDGEMENT TABLE OF CONTENTS LIST OF TABLES LIST OF FIGURES LIST OF ABBREVIATIONS		ii iii iv v vi viii ix x			
			CHA	APTER ONE : INTRODUCTION	1
			1.1	Background of Study	1
			1.2	Problem Statement	1
			1.3	Objectives	2
			1.4	Scope of Study	2
			1.5	Significance of Study	3
CHA	APTER TWO : LITERATURE REVIEW	3			
2.1	Benchmarking/Comparison with Available Products	3			
2.2	Related Manufacturing Process	6			
2.3	Sustainability/Ergonomic Related Items	7			
2.4	Patent and Intellectual Properties	7			
2.5	Summary of Literature	10			
CHAPTER THREE : METHODOLOGY		11			
3.1	Overall Process Flow	11			
3.2	Detail Drawing	12			
3.3	Engineering Calculation and Analysis	13			
3.4	Bill of Materials	16			

CHAPTER ONE INTRODUCTION

1.1 Background of Study

One technology that will make our lives and our work simpler can crusher makes recycling haul considerably more compact. Can Crushers come in a variety of types, sizes, and speeds. There are models to suit everyone, from big soda drinkers to those who don't drink soda at all. Many people had done a lot of work on this project. Invented a manual can crusher that can smash a variety of cans before making the tin as flat and symmetrical as possible and landing in the trash can, the design is both environmentally friendly and functional. This design used a very straightforward mechanism. So, the can crusher plays an important role to make recycling even easier.

1.2 Problem Statement

The problem to be addressed through this study is the human population is rapidly expanding. Every day, more products are consumed. As a result, the amount of waste produced is also expanding tremendously. The main downside is that it takes up more space, which is already a major issue leading to pollution. As a result, there must be some sort of mechanism in place to limit the volume of trash. Because there is only vacant room left after beverage cans have been used up, they take up a lot of space. After crushing a can, this area becomes available. This can help us save a lot of room. We usually crush cans with our legs. When crushed by a leg, they can cause injuries as well as being crushed at an angle. It also takes a lot of energy and time to crush all the aluminium cans. So, can crusher be a necessary advancement to overcome these issues.