

UNIVERSITI TEKNOLOGIMARA

**DESIGN, ANALYSIS AND
FABRICATION OF
TIN CAN CRUSHER**

MUHAMMAD ALIF HILMI BIN OSMAN

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

College of Engineering

March 2022

ABSTRACT

As we know, cans that are mainly from a beverage soda drink can are widely used throughout the world and that would be such a big problem to the environment. The ultimate aim of this project is to design and fabricate a manual can crusher to minimize the volume of the can up to 70% and for that, it is making the recycle process easier in aspect of transferring the can to the recycle site. This project will fabricate a can crusher that use crank and slider mechanism to crush the can. This report includes the engineering calculation that is needed and an assembly of the parts in CAD software.

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, Madam Nurrul Amilin binti Zainal Abidin.

Finally, this dissertation is dedicated to my fellow friends and relatives for the vision and determination to educate me. This piece of victory is dedicated to all of you. Alhamdulillah.

TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi-vii
LIST OF TABLES	viii
LIST OF FIGURES	ix-x
LIST OF ABBREVIATIONS	xii
CHAPTER ONE : INTRODUCTION	1
1.1 Background of study	1
1.2 Problem statement	1-2
1.3 Objectives	2
1.4 Scope of work	2
1.5 Significance of study	3
1.6 Expected results	3
CHAPTER TWO : LITERATURE REVIEW	4
2.1 Information on existing products, patents, standards	4
2.1.1 Manual	5
2.1.2 Semi-automatic	5-6
2.1.3 Automatic	6
2.2 Product design specification based on literature review	7
2.2.1 Specification of manual can crusher	7
2.2.2 Specification of semi-automatic can crusher	7
2.2.3 Specification of automatic can crusher	8

CHAPTER ONE

INTRODUCTION

1.1 Background of study

The purpose of this project is to review the making of tin can crusher. This project consists of several steps which are the designing and analysing of the tin can crusher. This project will show the importance of this tin can crusher to some targeted user around the world. The early stage of development for this project are constructing the actual shape and the function of the tin can crusher at the same time. It is an honor to deliver a user-friendly product in order to fulfil the requirements from the consumer, consideration to the others factor is taken. As we know, there are other design of this machine that have been created from people around the world. So, it is vital to take the function and durability aspect severely as it is all it takes to keep the unnecessary problems at bay and because of that, some modifications towards the design would be necessary to achieve the targeted acquirement. This tin can crusher are extremely useful to people that are handling with aluminium tin either rarely or daily. The shape of this machine will consist of the route of the tin from the beginning until it is completely crushed and straight to the bin at the bottom of the machine. Hence, the tin can crusher will be effectively convenience and safe to use.

1.2 Problem statement

Generally, there must be dozens of tin usages on every nook and cranny in Malaysia either on the land or the sea. Therefore, it is vital for the people of Malaysia to carry out the responsibilities to clean up the excessive use of tin. However, this is where it leads to a deadlock which is people are too lazy to tread the tin not to mention to recycle it. People found that the action of treading a tin with their feet would be a bit exhausting [5] and it increases depends on the number of tins handled. As described, it is obvious to know that people would be grateful to have some ways to cut down the efforts of handling tons of tin across the country.

As we know, it has become a tradition that is when we already finished our drinks, we must tread the tin using our feet to shrink up the shape of the tin. However,