UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF CAN RECYCLER VENDING MACHINE

MUHAMMAD NABIL IRFAN BIN NORISHAM

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

College of Engineering

Feb 2024

ABSTRACT

My project presents you a new way of recycling aluminium cans instead of throwing away without benefits. By using a pneumatic system and Arduino, customer can recycle their tin cans with a profit. People had been recycling tin cans from a long time ago using old method, with my machine, customers can earn money and make the job for the recycle centre easier by collecting crushed tin cans. This project also had been through research and development for its material, strengths, durability, material costings, thus resulting in an efficient and quality product for customers. This project will be going through some processes to complete the whole machine, which will be explained in the methodology part. Put on a nutshell, based on the developed system, authors discussed the pros and cons and points for each of the methods, processes, application so it works perfectly for the users and maybe would contribute to the community.

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, Dr. Abdul Hadi Bin Abdol Rahim for keep burning my spirit to make this project become a success.

Finally, this dissertation is inspired by my own family, especially my father about the experience they have and give me a heads up to make my project. This piece of journey, story and victory is dedicated to all of the people that were involved in my final project. Alhamdulilah.

TABLE OF CONTENTS

CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Recycling have done varies amount of contribution to our society and this very earth. One of them is by saving cost to rebuild products by using recycled materials. However, there are some people that still didn't take part in this recycle because of unaware, or even lazy to take a walk or ride to go to the recycling household center. Some places offer a dust bin to recycle products by separate the waste product by each categories, however they still thinks that this may not benefits them and it's like throwing away rubbish in regular dust bin.

To address these challenges, there grows a need to develop more beneficial way to recycle waste products that can benefits both recycler and to this society. The recycle bin and recycle household center are two of a great way to recycle in over decades but still needs an improvement in order to match with this modern era. Therefore, this project aims to design and create a recycle machine that is accessible that, even tourists, street people who walks by this machine, they might have a doubt and stop by to throw rubbish or recycle in a more efficient way.

By developing such machines, me, people, us are able to recycle in beneficial way, modern style and resulting to lessen the percentage of pollution caused by cans that is sitting everywhere on the ground. Additionally, some people may, made an income by recycle through this machine.

1.2 Problem Statement

A tin can can contributes a lot to the community by recycling them, however people did not aware of it so much. The worker who collects all the tin cans having a hard time to crush the cans in order to make it to a smaller size to save the space so that they could collect more cans. Worse than that, they had to pick up those tin cans one by one in a recycle bins or rubbish bins that had