UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF A KINETIC GRASS CUTTING MACHINE

HIZAIRI EIMRAN BIN KHAIRUL LIZAM

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

College of Engineering

Feb 2023

ABSTRACT

In our daily life, we surely have seen many types and sizes of lawns. A lawn needs trimming once every ten days or two weeks. Therefore, we need a lawnmower to do the job. People often use a standard lawnmower that uses engine, but it has many problems such as loud noise, pollution to earth and cost in maintenance. So, this project will make a machine that is quiet, low-cost maintenance and no pollution to earth. Surveys and research will be made to complete this project. This project is expected to ease people and give better experience in lawnmowing while keeping it safe for environment and requires less maintenance.

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, Mr. Ahmad Faidzal Bin Khodori.

My supervisor, Sir Ahmad Faidzal Bin Khodori, deserves a special thanks for his guidance and help. He provides good support, and always give good advice on how to approach my project. He is a big part that helped me make my project.

Finally, I would like to thank my family for their unconditional love, prayers, and support to me all this time. This is dedicated to my beloved family. Alhamdulillah.

TABLE OF CONTENTS

CONF	TRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION		iii
ABSTRACT		iv
ACKNOWLEDGEMENT		v
TABLE OF CONTENTS		vi
LIST OF TABLES		viii
LIST OF FIGURES		ix
LIST OF ABBREVIATIONS		X
CHAPTER 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	2
CHAP	TER TWO: LITERATURE REVIEW	3
2.1	Benchmarking/Comparison with Available Products	3
2.2	Related Manufacturing Process	4
2.3	Sustainability/Ergonomic Related Items	5
2.4	Patent and Intellectual Properties	6
2.5	Summary of Literature	8
CHAP	TER THREE: METHODOLOGY	9
3.1	Overall Process Flow	9
3.2	Detail Drawing	10
3.3	Engineering Calculation and Analysis	14

CHAPTER ONE INTRODUCTION

1.1 Background of Study

Nowadays, most people have their own lawn or backyard at their house. The grasses at these locations will surely grow tall if we do not take care of them. So, people use grasscutter to get the work done. It is efficient, can save time and save energy. However, this machine can cost a lot of money to afford or to pay people to do the job. It also makes loud noise that can bother other people around. Based on the facts stated above, a machine that is time and energy saving, lower in cost and no loud noises is clearly needed.

1.2 Problem Statement

An automatic lawnmower is surely good but there are also some problems that can be found. First one is not everyone can afford it because the cost is quite high. Moreover, the starter rope in the machine is stuck and can be hard to pull. Lawnmower can also lose power while mowing because of dirty filter. Lawnmower also has risk of smoke coming out of it caused by overfilling in the oil chamber. Moreover, Lawnmower can be hard to start. This is caused by many things such as leaks in the gas tank, or the mower battery is damaged. We can see that a standard lawnmower can have a lot of problems. These problems can be quite troublesome to solve, and some might require money to fix it. With this in mind, a manual grass cutter is more suitable for the job.