UNIVERSITI TEKNOLOGI MARA

DESIGN AND FABRICATION OF AUTOMATIC FISH FEEDER

MUHAMMAD IBRAHIM BIN NOR AZMAN

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

College of Engineering

Feb 2023

ABSTRACT

Having fish as pets nowadays is a really common thing, no matter if you are rich or not. Feeding pets is important to make sure they can get enough nutrients and live healthily. The automatic fish feeder is introduced to make sure pets are provided with enough food consistently without you having to consistently monitor them. Automatic fish feeders that are available in the market nowadays are pretty expensive and not much are being sold and produced in the common marketplace. Apart from that, they require a large amount of electricity to run and operate. So, this project introduces a new prototype that has no electricity consumption at all. It is also cheap, easy to use and installed due to lack of complicated mechanism.

ACKNOWLEDGEMENT

Firstly, I wish to thank Allah for giving me the opportunity to further my study in diploma in mechanical engineering. A very special thanks to my supervisor, Muhammad Faris Syafiq bin Khalid for fully guiding me and being a really understanding supervisor to complete this course. Also, thanks to my fellow friends that assist me in completing this project. 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		ii iii iv v vi xx xx			
			LIST	Γ OF ABBREVIATIONS	XX
			CIL	ATED AND INTRADUCTION	1
				APTER ONE : INTRODUCTION	1
			1.1	Background of Study	1
			1.2		3
			1.3	Objectives	3
1.4	1 5	4			
1.5	Significance of Study	4			
CHAPTER TWO : LITERATURE REVIEW		5			
2.1	Benchmarking/Comparison with Available Products	5			
2.2	Review of Related Manufacturing Process	6			
2.3	Patent and Intellectual Properties	7			
2.4	Summary of Literature	10			
СНА	APTER THREE : METHODOLOGY	11			
3 .1	Overall Process Flow	11			
3.2		11			
3.2 3.3	Detail Drawing	13 24			
	Engineering Calculation and Analysis				
3.4	Bill of Materials and Costing	30			
3.5	Fabrication Process	31			

CHAPTER ONE INTRODUCTION

1.1 Background of Study

Having fish as pets is a common thing nowadays, and it is considered as a hobby. Fish are one of the most low-cost maintenance pets that people can find. Basic things that are needed to have fish as pets are aquarium, clean water, aquarium cure liquid, fish food, pump filter and the fish itself. Since fish is the most low-cost maintenance pet, it is expected to buy the equipment and decorations at low costs. Anyway, some fish lovers are willing to spend a lot of money on their hobbies [1]. They would buy a lot of expensive equipment to satisfy their desires to brighten up their aquariums with lights and decorations. For example, driftwood, rocks, ships, statues, bubble makers and aquarium backgrounds are decorations and accessories that can improve the looks of aquariums. However, not everyone would spend a lot of money on pet fish and aquariums. Most people just buy the necessary things such as aquarium cure liquid, fish food and aquarium.

Just like having other pets, fish need to be fed to stay alive, just like humans. So, buying fish food is a must, but the problem is not the food. The matter that has been a problem for people who pet fish is feeding them. Some people might think that feeding fish is not that big a deal since the work is easy. But what people always concern are their fish don't get fed when they are away or forget to do so, and consistency of them feeding the fish.

When it comes to feeding the fish, the work is done by humans. The fish food is stored in a container and when it comes the time to feed the fish, a person just pours it out of the container into the aquarium. This is a conventional way to feed the fish. This method has a few disadvantages since it has to be done by humans and if there is no person to do the work, the pet fish would not get fed and literally become hungry, or in the worst-case scenario, they starve to death.

So, to counter this problem, a machine has been introduced to overcome the problems. It is an automatic fish feeder. This automatic fish feeder has been widely used