



اَوْبُنُوْرَسِيْتِي تِي كُنُوْ لُو كِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA

DESIGN AND FABRICATION OF AUTOMATIC CAT FEEDER

**MUHAMMAD HISYAMUDDIN BIN
MUHAMMAD RAZIF
(2021884814)**

Dissertation submitted in partial fulfilment
of the requirements for the degree of
Diploma in Mechanical Engineering

College of Engineering

January 2024

ABSTRACT

This Automatic Cat Feeder was created to make taking care of pets easier. The primary issue was that owners were not home to give their pets enough food, and the cat food would always get stuck in the space between the tank and the container. Pet owners can use a smartphone app to customize feeding food with the Automatic Cat Feeder. Food getting stuck in automatic cat feeders is still an issue, despite the variety of designs available. Food will not become trapped between the tank and the container with this automatic cat feeder. We're using an automatic system in this project, which the user can operate from a distance with a phone. This project's primary component is the ESP8266, which is related to other components such as Transmission Control Protocol/Internet Protocol (TCP/IP) network software and a WiFi microchip. The cat feeder and phone are typically connected via an ESP8266. The food will drop when the owner simply presses the "FOOD" button on the phone. Thus, flexible control is possible with the Automatic Cat Feeder.

ACKNOWLEDGEMENT

First, I want to express my gratitude to God for providing me with the chance to pursue my diploma and for helping me to successfully finish this difficult and drawn-out process. I would like to express my appreciation to my supervisor, Madam Norhashidah Binti Manap. She gave me great advice that improved my learning and greatly assisted me in finishing this final year project.

Next, I would like to express my gratitude to my amazing family—my parents in particular. They never stopped motivating me to stick with it and complete my senior year project. Their expenditure on the parts for my project was also substantial.

Ultimately, I'm willing to take any chances because I have a long way to go, and I hope that this energy and behaviour will continue. I dedicate this dissertation to my parents for their vision and unwavering commitment to my education. I dedicate this small victory to you both. Thank God.

TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER ONE: INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	1
1.3 Objectives	2
1.4 Scope of Work	2
1.5 Expected Results	2
CHAPTER TWO: LITERATURE REVIEW	3
2.1 Introduction	3
2.2 Product Dissection	4
2.2.1 Food Tank	4
2.2.2 Food Container	4
2.3 Patent Study	5
2.4 Benchmarking Of Automatic Cat Feeder	6
CHAPTER THREE: METHODOLOGY	7
3.1 Flow Chart	7
3.2 Preliminary Result	8
3.2.1 Customer Requirement	8
3.2.2 House of Quality	11

3.2.3	Product Design Specifications	12
3.2.4	Physical Decomposition	13
3.3	Gantt Chart	14
3.3.1	Gantt Chart Final Year Project 1	18
3.3.2	Gantt Chart Final Year Project 2	19
 CHAPTER FOUR: RESULTS AND DISCUSSION		20
4.1	Introduction	20
4.1.1	Functional Decomposition	20
4.1.2	Morphological Table	21
4.2	Concept Selection Discussion	22
4.2.1	Pugh Table	25
4.3	Embodiment Design Discussion	26
4.3.1	Product Architecture	26
4.3.2	Configuration Design	27
4.3.3	Parametric Design	28
4.4	Design Of Automatic Cat Feeder	29
4.4.1	Detail Product Design	29
4.4.2	Assembly Product Design	31
4.4.3	Exploded Product Design	32
4.5	Fabrication Of Automatic Cat Feeder	33
4.5.1	List of Materials	33
4.5.2	List of Equipment	35
4.5.3	Fabrication of Part	36
4.5.4	Assembly Process	38
4.5.5	Final Product	40
4.5.6	Bill Of Material and Costing	41
4.6	Product Testing	42
4.7	Product Function	43
4.7.1	Food Tank	43
4.7.2	Food Container	43