

UNIVERSITI TEKNOLOGI MARA

**AUTOMATIC SPINNING
UNDERCLOTHING HANGER**

**MUHAMMAD HAIKAL HAZIQ BIN ABDUL
RAZAK**

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

College of Engineering

Feb 2023

ABSTRACT

People nowadays tend to hang their underclothes inside of their house. However, inside the house, there are no sunlight to help their underclothes to dry. They can only depend on the presence of the wind. Wind is not guarantee too always pass inside the house. Therefore, a motorized spinning hanger are created. The primary goal of this research is to improve the underclothing hanger of today. The design will be fabricated based on the characteristic of people live in Malaysia. For example, it will be fabricated based on the average height of people in Malaysia. This will help make the design easier to use by people in Malaysia. As for its fabricated process, it will involve some machining process for example like welding, turning, boring and others. With the result of this design, people can dry their underclothes faster than normal.

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 Nur Aini Sabrin binti Manssor

I also wanted to thank to the assistant engineer that has helped me by guiding in completing my prototype. Then, I also wanted to thank my friend especially Iman, Zikry, Akmal, Azlan, Luqman and the rest for helping me completing the prototype and dissertation.

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. Alhamdulillah.

TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	vii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	xi
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	3
CHAPTER TWO : LITERATURE REVIEW	4
2.1 Benchmarking/Comparison with Available Products	4
2.2 Related Manufacturing Process	8
2.3 Sustainability/Ergonomic Related Items	9
2.4 Patent and Intellectual Properties	10
2.5 Summary of Literature	13
CHAPTER THREE : METHODOLOGY	15
3.1 Overall Process Flow	15
3.2 Detail Drawing	16
3.3 Engineering Calculation and Analysis	26
3.4 Bill of Materials	36

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

We all know that people usually don't hang their wet underclothing outside of their house. However, if they dry their underclothing indoor, it will take a long time to make sure the underclothing to dry completely. Therefore, the aim of this project is to design a new underclothing hanger rack that can produce some mechanical way to decrease the time taken for the underclothing to dry faster. A new system will be added which is the spinning method. The spinning will help the underclothing to dry faster with the passage of the wind [1]. This improvement will help the user to save more time to make sure their underclothing dry completely.

1.2 Problem Statement

Underclothing hanger rack has been used by many users especially in the house and hostel dorm. As for people using it at their house, they usually dry them in the bathroom while the people at the dorm hostel usually just dry them on the window. However, users have problem to wait for a long time to wait for their underclothing to dry. In the end, it will cost them a lot of time to wait for it to dry [2]. As for a dryer, it produces heat where we know that heat can cause shrinkage towards the underclothings [3]. Therefore, with the design of my project, users can save more of their time waiting for the underclothings to dry without producing any heat.