

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATION  
OF GARDEN STORAGE  
TOOL CART.**

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## **ABSTRACT**

"Design and Fabrication of Garden Storage Tool Cart" is the title of this project. The goal of this project is to assist people who enjoy gardening in their backyards and small gardens in reducing the burden and back pain while gardening. This is because the main issue that these people face is that they use more energy, which can cause serious back pain, especially for the elderly who enjoy gardening. This project's goal is to fabricate and modify an existing storage box into a rolling garden storage box with a seater. Following that, determine the maximum applied load, focusing on a seater that can be accommodated by the storage gardening tool cart. This project will also include design, fabrication, and analysis. This project will be designed using the 3D engineering software "Solidworks 2019." In this project, there are some calculations that use the Strength of Material equation to calculate bending stress and force.

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# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY SUPERVISOR</b>	<b>ii</b>
<b>AUTHOR'S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLES</b>	<b>viii</b>
<b>LIST OF FIGURES</b>	<b>ix</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xii</b>
<b>CHAPTER ONE : INTRODUCTION</b>	<b>1</b>
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
<b>CHAPTER TWO : LITERATURE REVIEW</b>	<b>4</b>
2.1 Benchmarking/Comparison with Available Products	4
2.2 Related Manufacturing Process	10
2.3 Sustainability/Ergonomic Related Items	14
2.4 Patent and Intellectual Properties	14
2.5 Summary of Literature	15
<b>CHAPTER THREE : METHODOLOGY</b>	<b>18</b>
3.1 Overall Process Flow	18
3.2 Detail Drawing	26
3.3 Engineering Calculation and Analysis	36
3.4 Bill of Materials	42

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of Study**

Nowadays, gardening is a great hobby for adults and seniors that has numerous benefits. Gardening is planting, growing plant activities, and taking care of the plants in the garden [1]. However, it does require some effort to take care of it. Fortunately, there are tools and equipment available to assist more gardeners in lessening their workload. The goal of this project is to create a garden rolling tool cart storage box seat that will help gardeners' problems and reduce the amount of burden of carrying tools during gardening activities. This storage can be used to store some mini common gardening tools such as a shovel, spade, scraper, rake, insecticides, and gloves [2]. It is ideal to use in a backyard or small garden. There are many different types and models of garden storage tools, such as mini toolboxes and bags. Each type of garden storage tool that has existed has more cons than pros for gardeners to do gardening activities, especially for an old person. In this case, the design of this project will be fabricated based on a simple gardening toolbox with some modifications to make it more portable. This enhancement will assist the user in transporting common gardening tools while gardening activities.

### **1.2 Problem Statement**

Gardening is an enjoyable activity that has its own set of advantages, such as the ability to reduce stress and increase muscle strength [3]. However, this activity has its own limitations, particularly for the elderly. People with limited mobility, in particular gardeners, are prone to having problems while gardening. This problem will affect gardeners because they will have to use more energy to transport common gardening tools when doing gardening activities. This issue can be solved by modifying the gardening tool storage into rolling with a seater. Next, gardeners are prone to knee pain if they stand for an extended period of time and it will cause muscle soreness in everyday life [4]. It is possible to solve this problem by transforming the gardening tool