UNIVERSITI TEKNOLOGI MARA

DESIGN AND FABRICATION OF A SEMI-AUTOMATED WATERING CAN

MUHAMMAD IRFAN DANIEL BIN ISMAIL

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

College of Engineering

Feb 2024

ABSTRACT

The development of watering cans has evolved over time to meet the needs and preferences of gardeners and plant enthusiasts. From simple vessels to sophisticated and ergonomic designs, the development of watering cans has been driven by a combination of functionality, efficiency, and aesthetics. Historically, watering cans were rudimentary containers made from materials such as clay or metal, with a basic spout for pouring water. These early versions served the purpose of manually watering plants, but their designs lacked features for precise and controlled watering. As gardening practices and techniques advanced, so did the design and functionality of watering cans. The introduction of plastic as a material revolutionized the industry, offering lightweight and affordable options that were resistant to rust and corrosion. Plastic cans allowed for more innovative designs, including ergonomic handles and adjustable spouts, providing greater control over water flow and distribution. Overall, the development of watering cans has been a journey of innovation and improvement, driven by the desire to provide gardeners with efficient and effective tools for nurturing their plants. With each advancement, watering cans have become more versatile, user-friendly, and aesthetically pleasing, making them an essential component of any gardener's toolkit.

ACKNOWLEDGEMENT

First and foremost, I am thankful to God for giving me the opportunity to pursue my studies and for that encourage me during this challenging and drawn-out process. It gives me great pleasure to thank Mr. Mohd Fadzli bin Ismail, my supervisor. I would like to express my deep gratitude to him for his consistent support and direction during my time working under your direction. I gained a lot from your mentoring in terms of my professional development.

And now, for my friends, I want to thank you for the amazing role you have all played in my life. Syed Abdullah, Amy, Fariznil, Zahin, Raja Nazrin, Syamil, Mustafa, Alya and my friends who all greatly assist me in achieving the success of my progress. Your friendship has brought me so much joy, support, and shared experiences that it has truly enhanced my life. Through the highs and lows, you've been there to lend an understanding ear, a supportive shoulder, and innumerable happy times. I want to thank you for the memories and cooperation we've shared, as well as for your loyal friendship, which I treasure.

Lastly, I would want to take a minute to express my heartfelt thanks to my parents, Mr. Ismail bin Sulaiman, Mrs. Saadiah binti Hashim, and all my siblings for their love, sacrifices, and steadfast support throughout my life. I dedicate this dissertation to my parents for their vision and unwavering commitment to my education. I am who I am today because of the qualities you instilled in me: kindness, integrity, and resilience. I feel more confident in pursuing my dreams because of your belief in me. I appreciate you being the rock that supports and illuminates my path in life. I dedicate this small achievement to you both. Alhamdulillah.

TABLE OF CONTENTS

CHAPTER ONE
INTRODUCTION

1.1 Background of Study

A watering can has been used in many countries to make sure the plants grow healthy. Water is the most important thing to make sure the plants grow healthy, compared to soil, environment, and other. The amount of water consumed by the plant depends on what plant it is.

Despite that, there is a problem related to this project: not all the plants can be watered using watering cans. This is because the watering can unable to water the whole plant because of the sprinkle is small and narrow. Then the soil will be dry because of a lack of water, which will affect the plants growth. The plants become dehydrated. The number of plants died will increase, causing great losses to farmers.

To avoid all of this, this project will be realised to make sure all the disadvantages can be prevented so the watering can have been improved. The watering can already be adjusted on the trolley, and it will be connected to the hydraulic pump. The hydraulic pump already links to the gear. When the trolley moves, the hydraulic pump automatically move, and the water will be disbursed and watered the plants. Next, the sprinkler of the watering can will be raised so that a lot of water can come out and all plants will get a sufficient source of nutrients. Other than that, the use of the trolley is that the watering can can carry a lot of water compared to the other watering can.