UNIVERSITI TEKNOLOGI MARA

DESIGN AND FABRICATION OF A MANUAL ROAD CLEANER

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ABSTRACT

The manual road cleaner is an innovative and sustainable solution for maintaining clean and safe roads. Operated by trained individuals, this user-friendly device utilizes advanced sweeping mechanisms to efficiently collect debris, litter, and dust particles from road surfaces. Its ergonomic design ensures ease of use and minimizes operator fatigue, while its high maneuverability enables effective cleaning in narrow or congested areas. By employing manual road cleaners, communities can benefit from improved road cleanliness, preventing the accumulation of trash and debris that may pose hazards or obstruct drainage systems. Additionally, this eco-friendly alternative reduces reliance on fossil fuel-powered cleaning equipment, contributing to a greener environment and lower carbon emissions. The manual road cleaner not only enhances road conditions but also creates employment opportunities for trained individuals, making it a sustainable choice for communities seeking to prioritize cleanliness and environmental sustainability.

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Cleaning is a basic need for all humans and is required for everyday regular process. Road cleanliness is essential for maintaining a safe and healthy environment in urban areas. Traditional road cleaning methods, such as manual sweeping or the use of simple mechanical sweepers, are often time-consuming, inefficient, and require significant manpower. To address the limitations of manual road cleaning, the development of a manual road cleaner machine is proposed. This machine will combine the benefits of manual operation, allowing for adaptability to various road conditions, with mechanized features to enhance cleaning efficiency. By automating certain tasks and integrating innovative technologies, the machine aims to improve productivity, reduce labor requirements, and ensure consistent cleaning results.

1.2 Problem Statement

The cleaning performance of manual road cleaner machines in terms of their ability to remove various types of debris, including dust, leaves, litter, and small debris needs more than one thing to clear up all of this matter. The improvement in cleaning machine will be working due to the factors of their requirement, such as brush bristle materials, suction power, and waste collection systems. Another than that the cleaning mechanism can be add to make it more function.

Roads and streets come in various shapes, sizes, and conditions, requiring the road cleaner machine to be adaptable to different surfaces, including asphalt, concrete, cobblestones, and gravel. It should be capable of efficiently cleaning urban streets, highways, sidewalks, parking lots, and rural roads.

The development of the road cleaner machine should aim for a cost-effective solution that provides significant improvements over existing methods. It should offer a balance between initial investment, operational costs, and long-term benefits, such as increased productivity, reduced labor requirements, and improved road cleanliness.