# UNIVERSITI TEKNOLOGI MARA

# DESIGN AND FABRICATION OF A MECHANICAL GRASS CUTTER

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# ABSTRACT

The development of a lawn cutter that runs without fuel or power is a development in the realm of gardening and landscaping. Gardeners can use this grass cutter to trim the grass on their lawns or even in remote areas without access to electricity. The use of fuel-powered grass cutter has negative environmental and economic impacts. In addition, the noise pollution caused by these machines can be a nuisance to communities. There is a need for a grass cutter that runs without fuel or electricity sources to mitigate these issues. The goal of this project is to design and build a grass cutter that does not need fuel or electricity. The project's goal is to create a prototype lawn cutter using SolidWorks. Through the utilisation of created torque, the cutting head mechanism functions flawlessly. To cut grass efficiently, the setup rotates the shaft using a variety of wheel arrangements. This method guarantees a more orderly and silent grass-cutting procedure. Wide-ranging advantages are anticipated from this discovery, such as a decrease in noise and air pollution and the maintenance expenses associated with conventional lawn mowers. The goal is to create a working prototype of an energy-efficient grass cutter that can effectively replace the current generation of lawn mowers that run on petrol.

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# INTRODUCTION

## 1.1 Background of Study

An important development in the world of gardening and landscaping is the creation of a mechanical grass cutter that runs without fuel or electricity. The conventional techniques of using gasoline- or electricity-powered lawn cutters have a few drawbacks, including high maintenance costs and environmental issues. Gasoline-powered lawn and garden equipment (GLGE) are sources of significant amounts of localised emissions, including hazardous air pollutants, criterion pollutants, and carbon dioxide (CO2) [1]. As a result, it is now more crucial than ever to find a sustainable and environmentally responsible method of cutting grass.

The potential harm that grass cutters may inflict on the environment and people's health due to their emissions of carbon dioxide and other pollutants is a contemporary problem. Hand-held grass-cutting employees showed positive hand- transmitted vibration from grass-cutting machines' symptom. Because there were indicators that fingers became white and felt numb [1]. The safety risks of using conventional gas- or electric-powered grass cutters, such as accidental injury and noise pollution, are another problem.

Switching to grass cutters that are environmentally friendly and emit fewer pollutants is one answer. Electric, solar, or manually operated grass cutters are a few types of environmentally friendly mowers [2]. Public awareness can be increased, and more sustainable practises promoted by educating people about the possible health and environmental concerns associated with conventional lawn cutters and the available alternatives.

The aim of designing and fabricating a grass cutter that requires no fuel or power to operate and is manually operated are environmental sustainability, noise reduction, cost-effectiveness and efficient [3]. The grass cutter will be made to be user- friendly, reasonably priced, and robust so that it can be used by a variety of people, including those with low resources.