

UNIVERSITI TEKNOLOGI MARA

**DESIGN AND FABRICATE A GO –
KART BACK SUSPENSION SYSTEM**

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ABSTRACT

This project aims to create a go-kart rear suspension system that enhances safety, handling, and ride comfort. The primary difficulty lies in selecting the appropriate suspension type, such as independent suspension or solid axle suspension, while striking the correct balance between weight, adjustability, and chassis fit. The project's goal is to increase grip and stability, particularly on uneven tracks and at high speeds. The method entails studying existing suspension designs, concentrating on important elements like balance and weight distribution, and creating a system that adds little weight, is simple to modify, and fits the go-kart frame perfectly. Prototypes will be tested in real-world settings to make adjustments, and computer simulations will forecast the suspension's performance. Making use of cutting-edge technology, such as lightweight materials with electrical controls for in-the-moment modifications, will aid in performance optimization. Safety is a top priority, so make sure the components are robust and have contingency plans in case they fail.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

A go-kart's rear suspension system is a vital component that absorbs shocks, maintains tire contact with the ground, and enhances traction and stability during driving. It consists of mechanical parts like springs, dampers, and sway bars, designed to distribute weight evenly, control body roll, and adjust handling characteristics. Common configurations include live axles for simplicity, independent suspension for improved performance, and swing axles for high-performance applications. Ultimately, the rear suspension system significantly influences the go-kart's ride quality, handling, and overall driving experience.

Despite, the issues that related to a go-kart's rear suspension system can include traction loss, handling instability, bottoming out on bumps, component wear and failure, adjustment complexity, and cost. Poor suspension setup or alignment can lead to traction problems and make the go-kart difficult to control, especially during turns or on uneven surfaces. Additionally, worn-out or improperly maintained suspension components can cause discomfort for the driver and even compromise safety. Simplifying the adjustment process and ensuring accessibility to replacement parts can help users address these issues effectively and maintain optimal performance from their go-karts. Regular inspection and maintenance are essential to prevent problems and ensure a smooth driving experience.

The go-kart rear suspension systems focus on making them adjustable, durable, and easy to use. By using high-quality materials and innovative designs, manufacturers improve reliability and reduce maintenance needs. Adjustable components allow users to customize settings for different tracks and preferences, while modular systems offer easy installation and upgrades. These improvements enhance performance, comfort, and user satisfaction.