

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATE  
A GO-KART DRIVE AND BRAKE  
SYSTEM**

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## **ABSTRACT**

This project is to develop a drive and brake system for a go-kart, addressing the need for enhanced performance and safety in recreational and competitive settings. With the go-karting as a popular activity, there is a growing demand for innovative systems that balance power, control, and safety. The objective of this project is to design and fabricate a comprehensive drive and brake system that integrates seamlessly with existing go-kart frames while offering improved functionality and reliability. The methodology involves meticulous component selection, including engine or motor, drive mechanism, and brake type, followed by precise fabrication techniques to ensure structural integrity and optimal performance. Safety features such as a roll cage and kill switch are incorporated to mitigate risks associated with high-speed driving. Through rigorous testing and evaluation, the expected result is a go-kart drive and brake system that not only meets regulatory standards but also exceeds user expectations in terms of responsiveness, durability, and overall driving experience. By achieving these objectives, this project aims to contribute to the advancement of go-kart technology and enhance the safety and enjoyment of enthusiasts worldwide.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of Study**

Go-karting, a popular recreational and competitive activity, has evolved significantly since its inception in the mid-20th century. Originating as a simple backyard pastime, go-karting has transformed into a recreational sport with specialized equipment and dedicated venues worldwide. The appeal of go-karting lies in its accessibility and experience, attracting enthusiasts of all ages. However, with this increased popularity comes the need for advancements in go-kart technology to enhance performance, safety, and overall user experience.

One critical aspect of go-kart design is the drive and brake system, which directly impacts the kart's speed, control, and safety. Traditionally powered by small gasoline engines, modern go-karts now also utilize electric motors for eco-friendliness and ease of maintenance. The choice between chain or belt drive systems affects power transfer efficiency and maintenance requirements, while brake options range from mechanical to hydraulic, each offering unique advantages in terms of responsiveness and stopping power. Safety remains important in go-karting, with regulations and standards governing everything from track design to vehicle specifications. Features such as roll cages, harnesses, and emergency shut-off switches are essential to mitigate risks associated with high-speed driving and potential accidents.

The background study also includes existing research and developments in go-kart drive and brake systems, highlighting areas of innovation and improvement. Previous studies have explored topics such as aerodynamics, chassis design, and materials science, all of which contribute to enhancing go-kart performance and safety. Overall, the background study sets the stage for the design and fabrication of a go-kart drive and brake system, emphasizing the importance of balancing innovation with safety to meet the evolving needs of go-karting enthusiasts and industry standards.