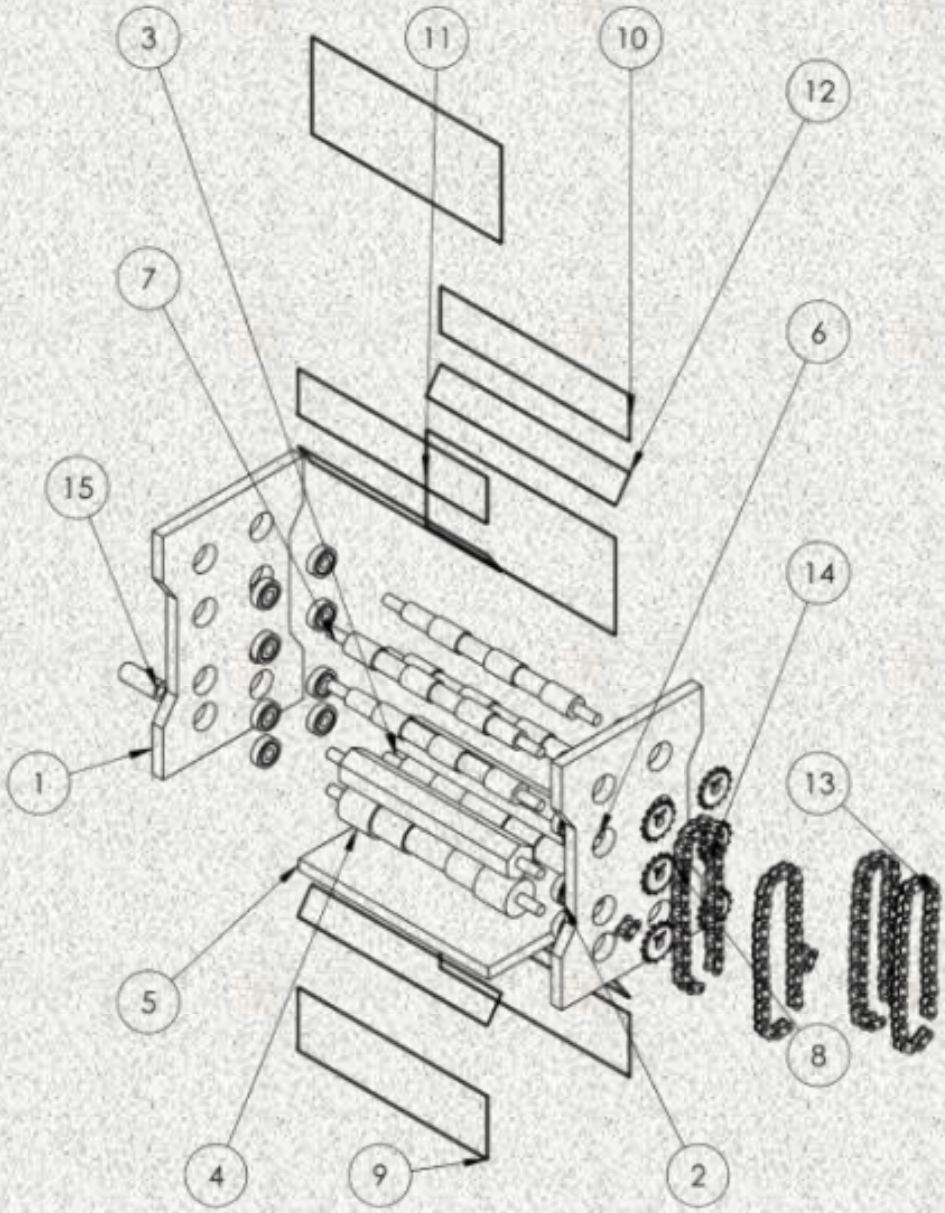
PROTOTYPE DESIGN COLLECTION

SERIES 4

Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



Ahmad Najmie Rusli

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CHIEF EDITOR:

Ahmad Najmie Rusli

EDITOR:

Nurul Nadiah Rasdi

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FOREWORD

This digital book on Prototype Design Collection Series 4 (PDC Series 4) is published as a reference design for mechanical engineering students. The designs presented experience a few phases of analysis before fabrication of prototype. Each project summarises the project description, prototype, figures, and design parameter. The design products vary in tools or equipment for household, workshop, entrepreneur, etc. Suggested material and detail of prototype dimension are also mentioned in this book.

It is hoped that this book will assist the students to have more ideas on innovation design products in the future.

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CHAPTER 51

Design and Fabricate A Go-kart Motor Fixing Holder and Gearing System

Nur Adlin Farhana Binti Mohamed Samud [1] and Ab Aziz Bin Mohd Yusof [2*]

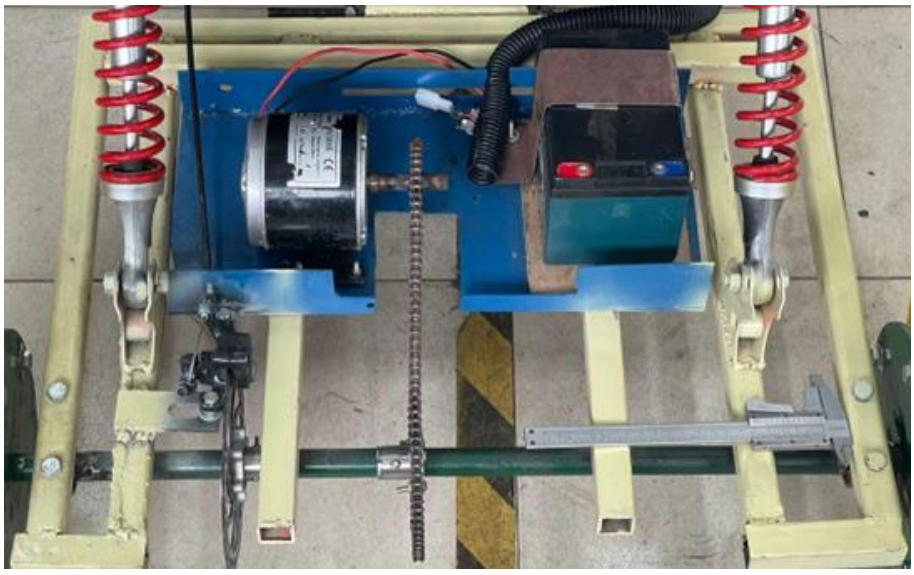
[1,2]*Mechanical Engineering Studies, College of Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus, 81750 Masai, Bandar Seri Alam, Johor Darul Ta'zim.*
**Corresponding author (e-mail): abaziz86@uitm.edu.my*

PROJECT DESCRIPTION

This study focuses on the design and analysis of motor fixing holders and gearing systems for small-scale vehicles, specifically go-karts. The primary objective is to achieve an optimal balance of power output, torque, and speed to enhance both performance and efficiency. The research involves selecting suitable motors, whether gasoline or electric, and integrating gearing systems such as centrifugal clutches and torque converters. Through theoretical analysis and practical experimentation, various gear ratios will be evaluated to assess their effects on acceleration, top speed, and handling. Additionally, the study examines weight distribution in relation to the power-to-weight ratio and its impact on system performance and safety. The findings will provide guidelines for designing efficient and reliable motor fixing holders and gearing systems, contributing to a better understanding of their applications in both recreational and competitive go-karting. Ultimately, this research advances vehicular engineering by offering insights into the interaction between mechanical components and dynamic performance.

Keywords: *Design and fabrication, Gearing system*

PROTOTYPE



DESIGN PARAMETER