

PROTOTYPE DESIGN COLLECTION

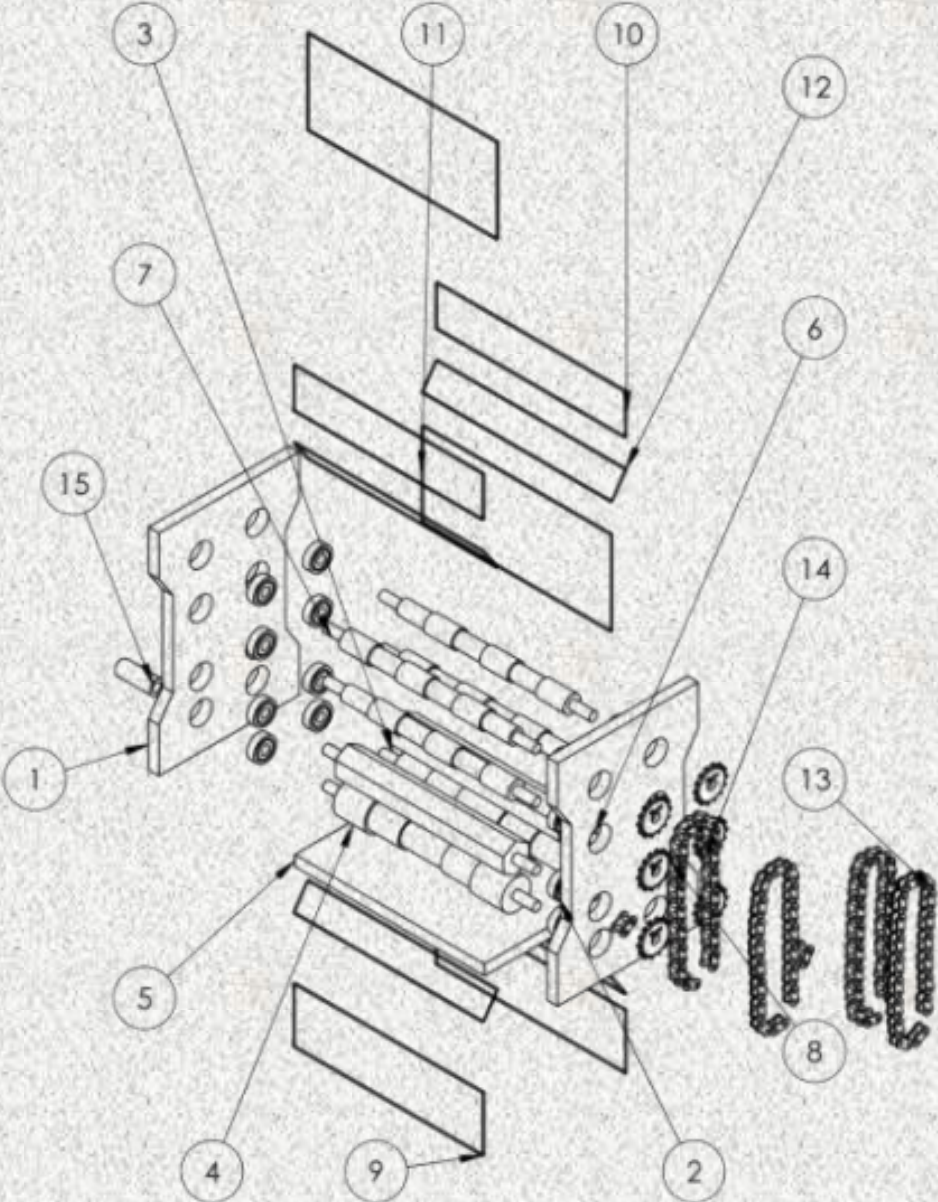
SERIES 4



Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



Ahmad Najmie Rusli

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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 52

Design and Fabrication of Steering System for Student Formula Race Car

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PROJECT DESCRIPTION

The steering system plays an integral role in determining the car's handling, reactivity, and driver control. A common problem with formula racing cars is loose steering, which can be caused by wear and damage to the steering linkage components. This can have an impact on other parts attached to the linkage components, such as the steering wheel, and develop excessive play when rotating the wheels. Therefore, this study's aim is to produce an existing steering system that uses the best mechanism and is supported by a support that can hold it all the time through the use of high-quality materials, precision manufacturing techniques, and rigorous testing and validation processes. Elements like weight, strength, ergonomics and manufacturability must be considered in the design process. Examination of new ideas and technologies through extensive research improves the performance of the steering system. The primary objective of this project is to design and fabricate a complete steering system with its support system, which was accomplished after the project was completed. By means of rigorous design iterations and testing phases, it has met the goals with noteworthy success. In conclusion, this steering system prototype can be used in a single-seated race car to improve vehicle handling and turning.

Keywords: *Formula race car, Keyword 2*

PROTOTYPE



DESIGN PARAMETER

