

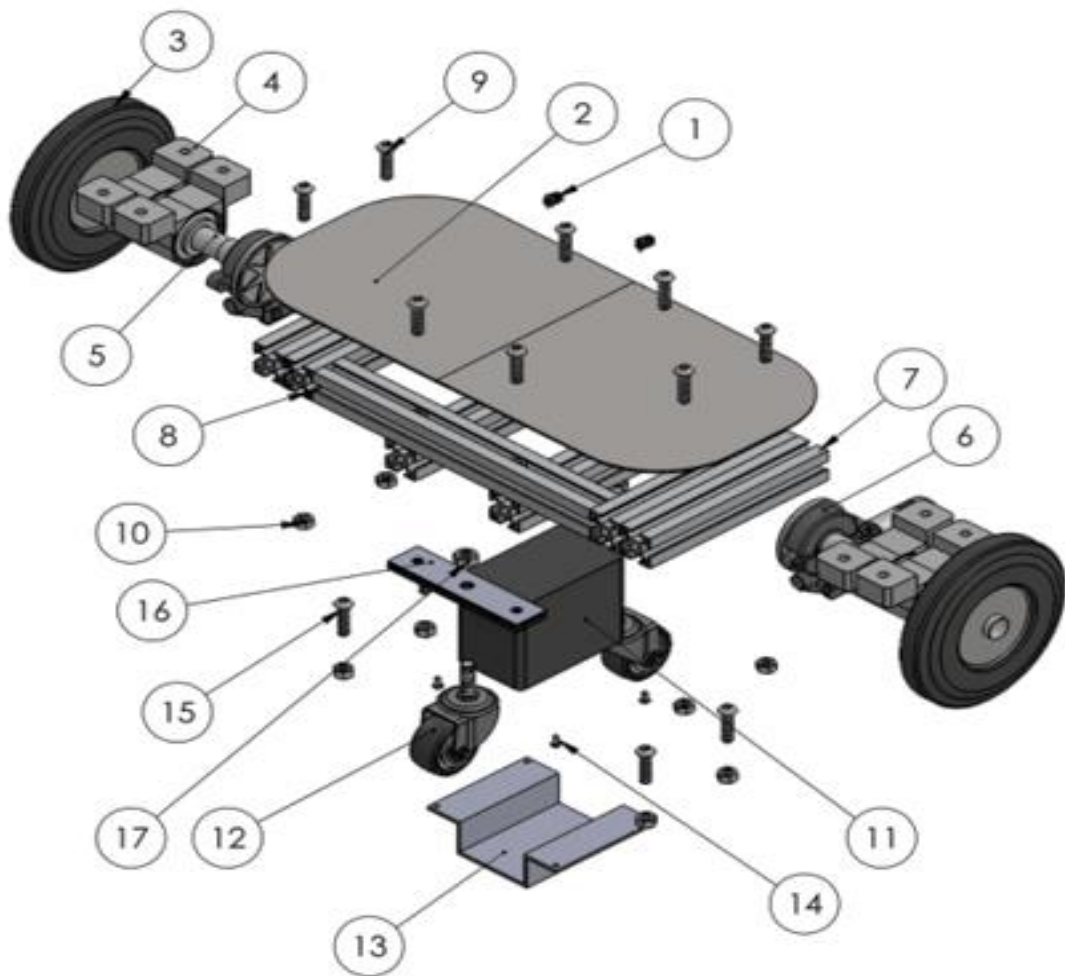
# PROTOTYPE DESIGN COLLECTION

## SERIES 2



# Prototype Design Collection

Series 2



**AHMAD NAJMIE RUSLI**

**UNIVERSITI TEKNOLOGI MARA CAWANGAN JOHOR  
KAMPUS PASIR GUDANG**

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# FOREWORD

This digital book on Prototype Design Collection Series 2 (PDC Series 2) 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 19

### Safety Cooking Gas Trolley

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#### PROJECT DESCRIPTION

This project focuses on the design and development of a cooking gas trolley with improved convenience, portability, and safety when handling household gas cylinders. The unique feature of the motorized mechanism enables stair climbing ability for easiness in transporting gas cylinders in multi-story environments. Conventional methods of carrying heavy gas cylinders upstairs can be physically demanding and pose accident risks. The cooking gas trolley incorporates a sturdy frame with specially designed wheels and a motor-driven mechanism. The position of the trolley is adjusted using actuators, allowing it to climb the stairs smoothly and evenly. Its secure locking system ensures the stability and safety of the gas cylinder during transportation. Extensive testing and validations were conducted to evaluate the performance and reliability of the motorized cooking gas trolley. These tests included stair-climbing capability, load capacity and battery life. The successful implementation of this product-based project will be of great benefit to users, especially in multi-story buildings. The safety cooking gas trolley offers a convenient and efficient solution for effortlessly transporting gas cylinders up and down stairs, reducing physical strain and the risk of accidents. This project aims to increase usability, promote safety, and provide an innovative solution for improved gas cylinder handling.

**Keywords:** *Motorized, Gas, Trolley, Stair, Safety*

#### PROTOTYPE



**DESIGN PARAMETER**

