

PROTOTYPE DESIGN COLLECTION

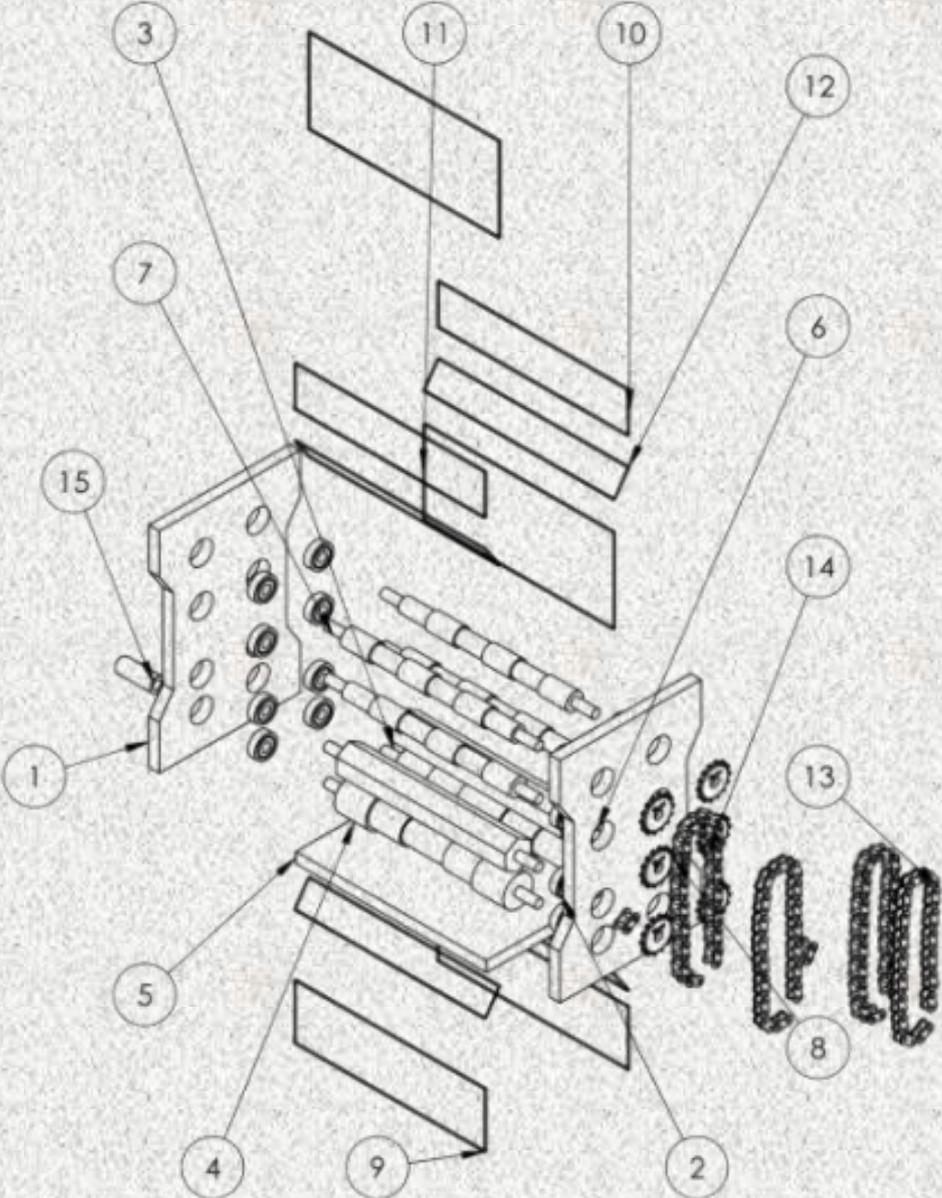
SERIES 4



Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



Ahmad Najmie Rusli

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PUBLISHER:

Universiti Teknologi MARA
Cawangan Johor Kampus Pasir Gudang,
Jalan Purnama, Bandar Seri Alam, 81750 Masai, Johor
September 2025

eISBN: 978-967-0033-62-4

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 34

Development of an Innovation Beach Cleaner Machine

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PROJECT DESCRIPTION

The goal of this project is to develop a beach cleaning machine that is more energy efficient, cost effective, and easy to use. The machine operates using a simple push and pull mechanism, enabled by its wheel-based design. While there are many beach cleaning machines available on the market, most are complex and expensive. This device is designed to automatically collect trash from the beach, eliminating the need to manually dig through the sand for debris. It also includes a mechanism to separate waste from sand, making it easier to maintain and well-suited for use in sandy environments. One of the key innovations in the design is a built-in separation system that efficiently distinguishes between sand and waste materials, ensuring that only trash is collected while the clean sand is returned to the beach. This not only improves the effectiveness of the cleaning process but also minimizes environmental disruption. The machine is lightweight, easy to transport, and requires minimal maintenance, making it suitable for frequent use in various sandy environments. Overall, the development of this machine aims to promote environmental sustainability through practical, accessible and affordable technology.

Keywords: *Beach cleaner, Sand cleaner*

PROTOTYPE



DESIGN PARAMETER

