

PROTOTYPE DESIGN COLLECTION

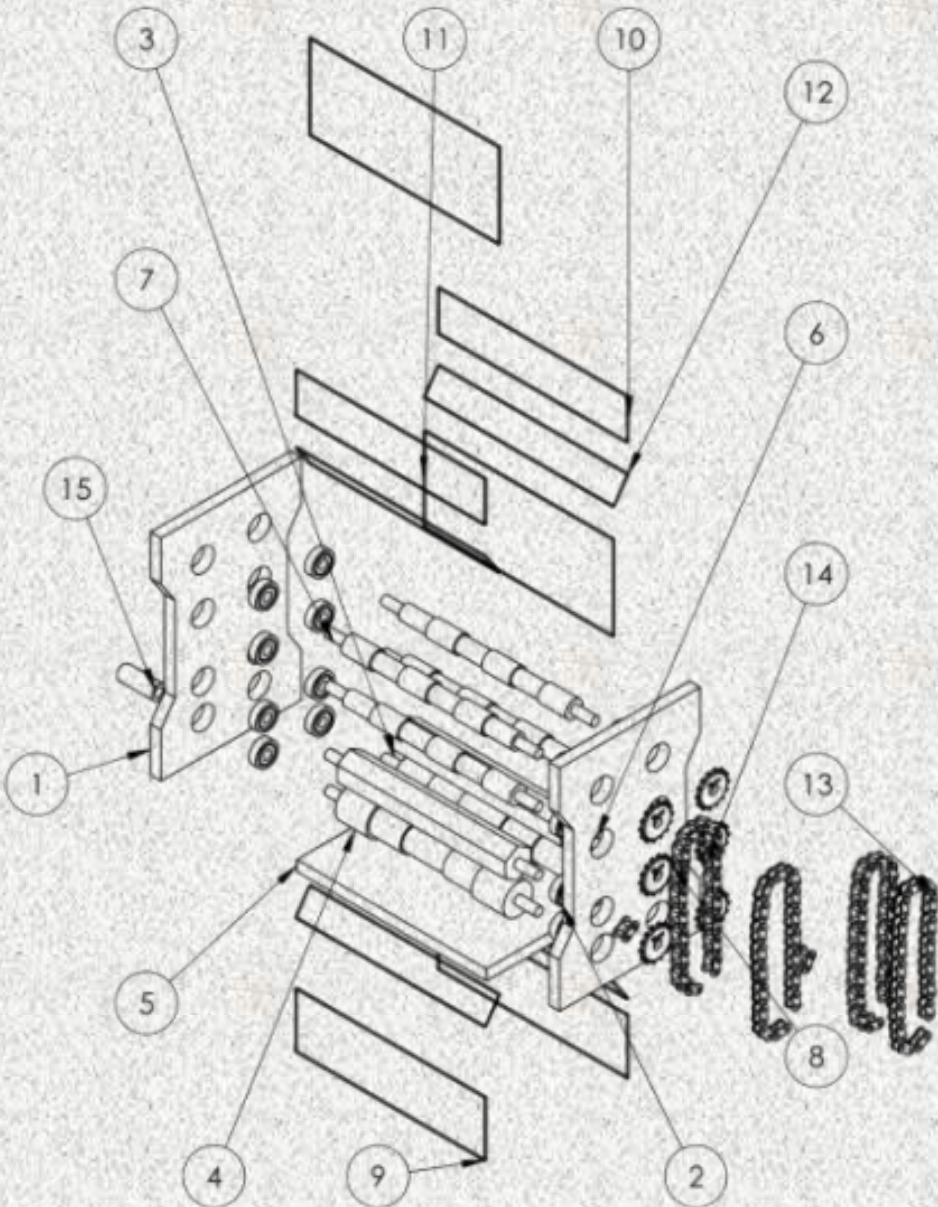
SERIES 4



Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



Ahmad Najmie Rusli

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Jalan Purnama, Bandar Seri Alam, 81750 Masai Johor.**

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CHIEF EDITOR:

Ahmad Najmie Rusli

EDITOR:

Nurul Nadiyah 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 45

Amir Automatic Wrapping Machine

Amir Fitri Bin Mohd Rais ¹, Mohd Noor Halmy Ab Latif ^{2*} and Norshadila Ahmad Badela ³

^{1,2}*Faculty of Mechanical Engineering, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus, 81750 Masai, Bandar Seri Alam, Johor Darul Ta'zim.*

³*Jabatan Teknologi Maklumat & Komunikasi, Politeknik Ungku Omar, Jalan Raja Musa Mahadi 31400, Ipoh, Perak Darul Ridzuan.*

**Corresponding author (e-mail): halmy@uitm.edu.my*

PROJECT DESCRIPTION

Existing wrapping machines provide issues for small-scale producers and distributors because of their high cost, enormous size, and lack of portability. The goal of this project is to design and build a low-cost, portable automatic wrapping machine to address these challenges. The machine was created by gathering data from existing products, assessing essential design components, and utilizing CAD software for design optimization. The manufacturing process included cutting, welding, and assembling of lightweight yet robust components to ensure affordability and ease of movement. The resulting prototype has a compact form with a smaller footprint, improved portability with wheels, and a cheaper production cost of RM 555, making it affordable for small firms. Testing confirmed the machine's ability to efficiently wrap items, with a cycle time of 15-25 seconds. The equipment can support goods weighing up to 30 kg and operates ergonomically. This study met its aims by proposing a viable alternative to standard wrapping machines that is affordable, portable, and efficient. Future enhancements, such as the addition of a film height detector and a gearbox, could improve functionality and adaptability to a broader set of applications

Keywords: *Automatic, Wrapping*

PROTOTYPE



DESIGN PARAMETER

