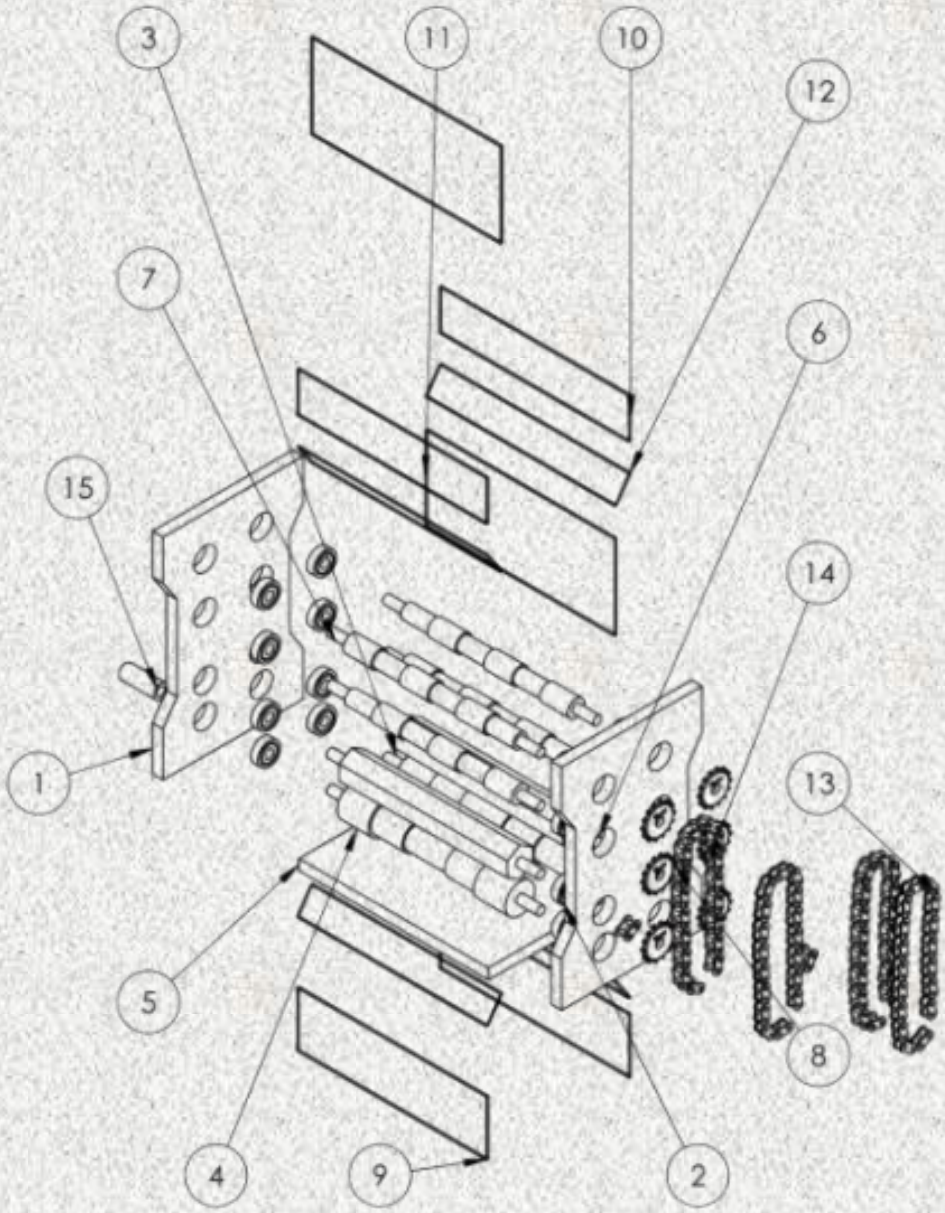
PROTOTYPE DESIGN COLLECTION

SERIES 4

Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



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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.

e-ISBN: 978-967-0033-62-4

CHAPTER 17

Design and Development of Coconut De-Husking Machine

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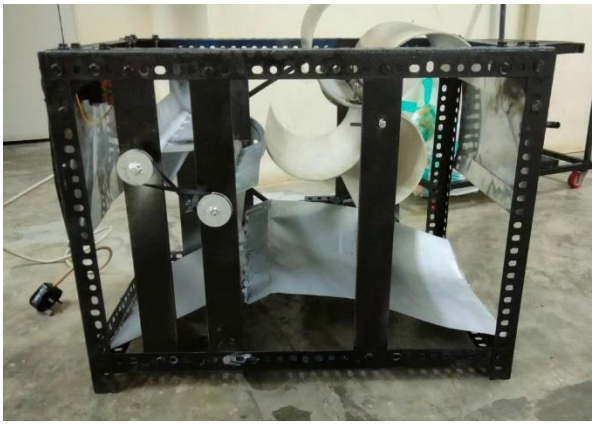
PROJECT DESCRIPTION

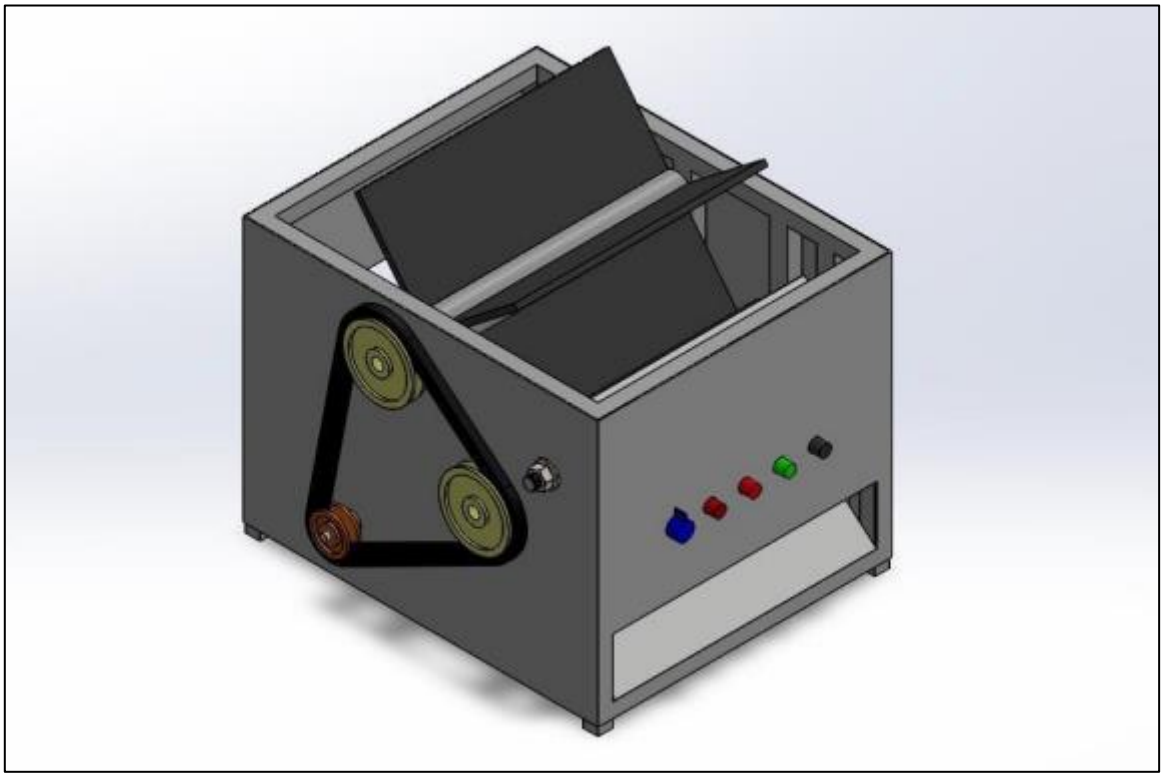
In Malaysia, the coconut industry faces challenges related to the labor-intensive and hazardous de-husking process. This project aims to design and develop a coconut de-husking machine to address these issues. The main objectives are to enhance the efficiency, safety, and cost-effectiveness of the de-husking process. The proposed machine will be designed using SolidWorks 2023 and powered by a single motor. Key methodologies include the conceptual design, engineering analysis, and fabrication of the machine. The expected outcomes are improved processing speed, reduced labor costs, and enhanced worker safety. This project not only aims to benefit the local coconut industry but also has the potential to contribute to global agricultural practices.

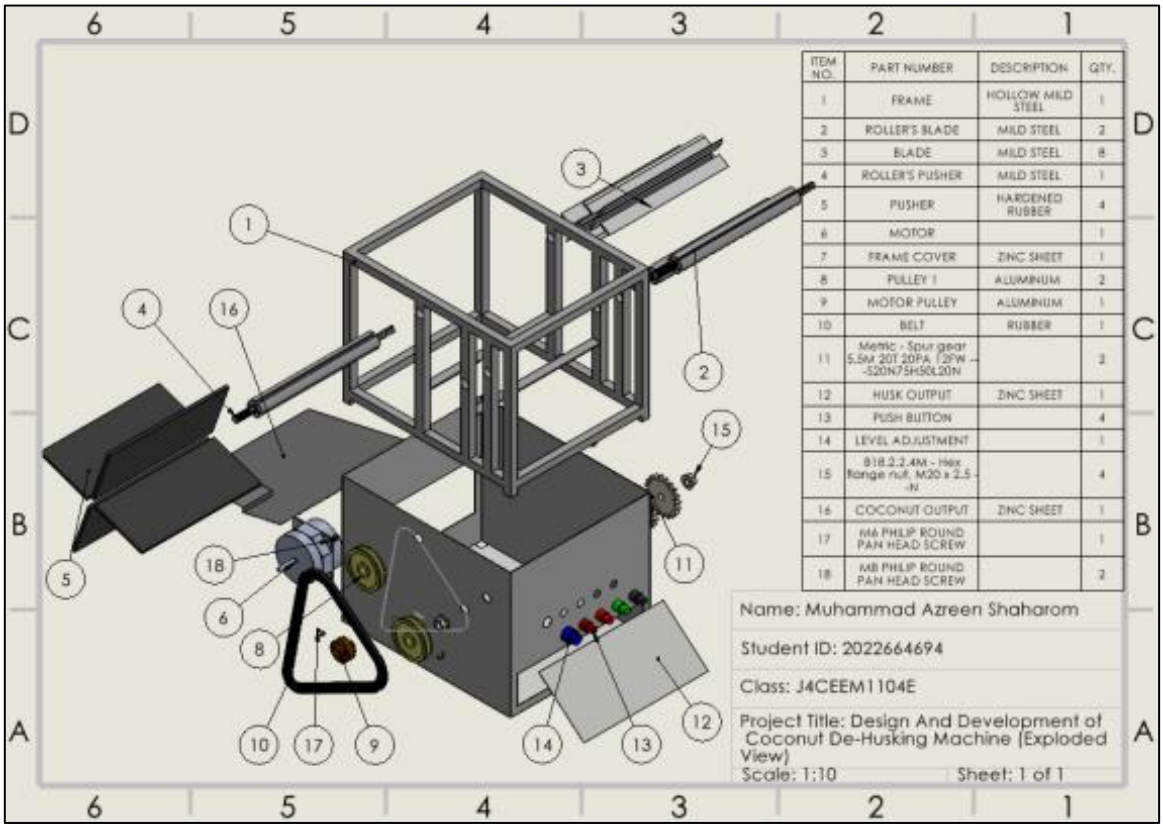
Keywords: *Coconut, Machine*

PROTOTYPE



DESIGN PARAMETER





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	FRAME	HOLLOW MILD STEEL	1
2	ROLLER'S BLADE	MILD STEEL	2
3	BLADE	MILD STEEL	8
4	ROLLER'S PUSHER	MILD STEEL	1
5	PUSHER	HARDENED RUBBER	4
6	MOTOR		1
7	FRAME COVER	ZINC SHEET	1
8	PULLEY 1	ALUMINUM	2
9	MOTOR PULLEY	ALUMINUM	1
10	BELT	RUBBER	1
11	Metric - Spur gear 5.5M 20T 20PA (2PW -S20N75H50L20N		2
12	HUSK OUTPUT	ZINC SHEET	1
13	PUSH BUTTON		4
14	LEVEL ADJUSTMENT		1
15	B18.2.2.4M - Hex flange nut, M20 x 2.5 - -N		4
16	COCONUT OUTPUT	ZINC SHEET	1
17	M6 PHILIP ROUND PAN HEAD SCREW		1
18	M8 PHILIP ROUND PAN HEAD SCREW		2

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Class: J4CEEM1104E

Project Title: Design And Development of Coconut De-Husking Machine (Exploded View)

Scale: 1:10 Sheet: 1 of 1