

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 25

Dustbin Lid Pedal Lifter

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PROJECT DESCRIPTION

The 12-gallon (45-liter) dustbin is widely used in various settings, such as retail malls, schools, hospitals, and cafes. However, disposing of trash often requires lifting the lid, which some people may find inconvenient or unhygienic, especially when their hands are full or the lid is dirty. As a result, trash may be left around the bin. This project proposes a foot-operated lid opening attachment for 12-gallon (45-liter) dustbins, which allows users to lift the lid by stepping on a foot pedal. The adjustable frame can accommodate minor variations in dustbin dimensions. This product was designed and analyzed using Solid Works software. It was fabricated using aluminium profiles, mild steel plates, rods, and flat bars, with processes such as welding, cutting, and grinding. By implementing this product, users no longer need to lift the dustbin lid by hand, making it easier to manage. Moreover, it helps maintain a clean and tidy environment. The 12-gallon (45-liter) dustbin can be easily connected to the attachment by stepping on the foot pedal, which will lift the lid. In conclusion, this product has the potential to enhance hygiene and convenience for everyone in various settings.

Keywords: *Dustbin lid, Pedal lifter*

PROTOTYPE



DESIGN PARAMETER

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CLASS:	J4EM1104J
TITLE:	DUSTBIN PEDAL LID LIFTER
SCALE:	1:6
SHEET 1 OF 1	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	aluminium profile for vertical part	aluminium profile 40mmx40mm	4
2	aluminium profile for horizontal part	aluminium profile 40mmx40mm	8
3	Foot mount	50-M8-80	4
4	Gussets	40mmx40mm	16
5	hinge with clamp	mild steel plate 3mm thickness	1
6	Lever	mild steel rod 5mm diameter	1
7	T plate	mild steel plate 3mm thickness	2
8	Rod	mild steel rod 5mm diameter	1
9	Foot Pedal	mild steel plate 3mm thickness	1

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TITLE:	BILL OF MATERIALS
SCALE:	1:6
SHEET 1 OF 2	