

PROTOTYPE DESIGN COLLECTION

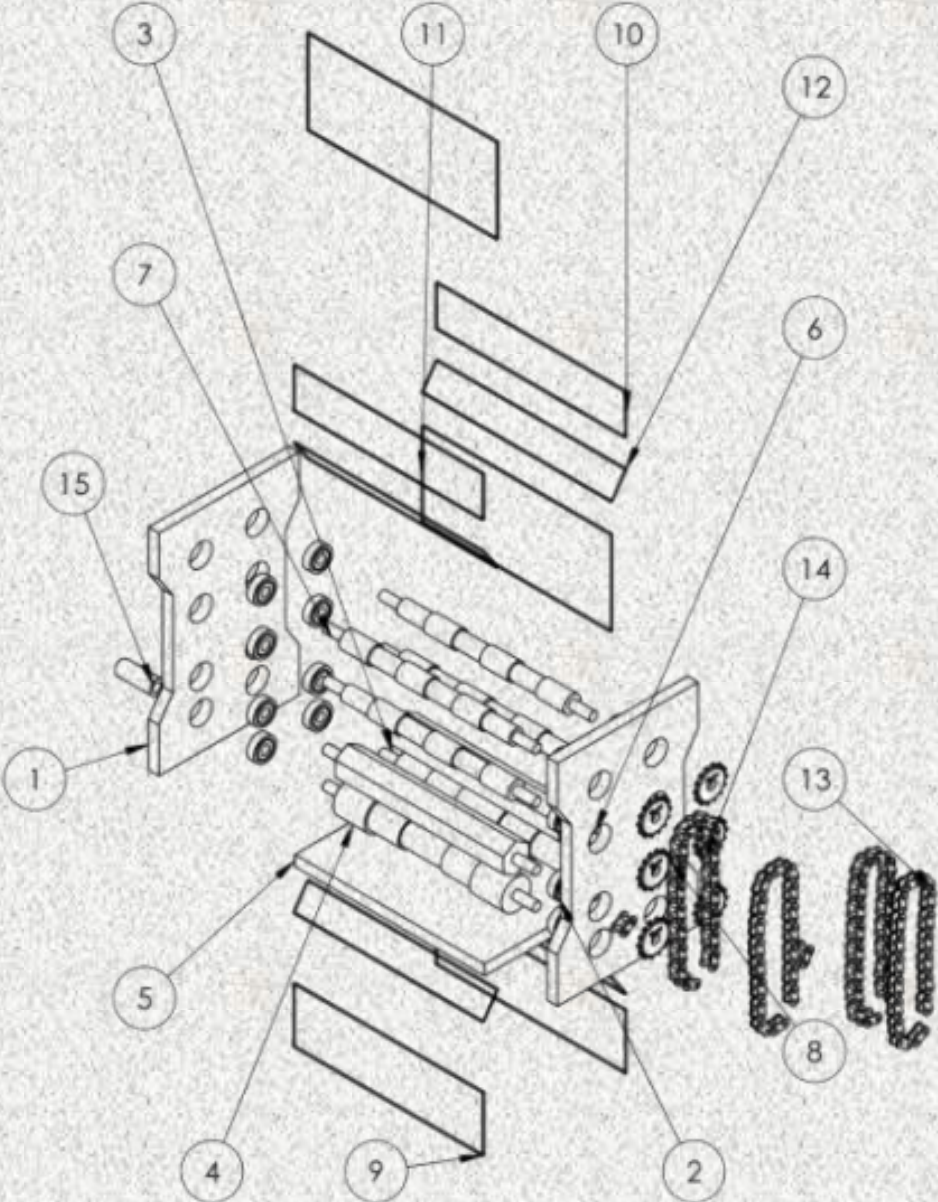
SERIES 4



Universiti Teknologi MARA
Pasir Gudang Campus

Prototype Design Collection

Series 4



Ahmad Najmie Rusli

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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 38

Design and Fabrication of Portable Mini Air Cooler

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PROJECT DESCRIPTION

The need for air coolers has increased in recent years, as global temperatures have become unpredictable. The necessity for an air cooler is critical for people who live or work in cities, to have a pleasant location to work or live in hot weather. Unlike standard air conditioners which have the compressor unit to keep the air cool, bulkiness of the inside and outdoor unit and complicated to install, these coolers use evaporative cooling technology, which draws in heated air, passes it through a moistened filter, and then releases a stream of cold, humidified air into the surrounding area. This method not only reduces the ambient temperature but also adds moisture to the air, reducing dryness and increasing comfort, particularly in arid conditions. Thus, the main objective of this project is to develop a compact and lightweight 3 in 1 cooling device that is capable to humidified, purify and cooled the air in the area without the complex installation like the standard air conditioner. Furthermore, this mini air cooler can easily be portable and suitable for use in various environments, with its own power source and rechargeable battery, allowing the user to bring the product anywhere. In conclusion, portable mini air coolers are a versatile and efficient alternative for personal cooling, cleaning the air and humidity. Their small size, internal energy, and improved functions make them useful companions for anyone looking for comfort and relief from the heat in a variety of indoor and outdoor locations.

Keywords: *Portability , Mini air cooler*

PROTOTYPE



DESIGN PARAMETER

ITEM NO.	PART NUMBER	QTY.
1	frame typ 2	1
2	motor mount	1
3	motor	1
4	fan blade	1
5	solar panel	1
6	solar panel bracket	1
7	body cover 1	1
8	body cover 2	1
9	scp	1
10	thermometer	1
11	battery	1
12	inverter	1
13	lock 1	1
14	lock 2	1
15	lock 3	1
16	cover inside	1
17	water reservoir	1
18	cover 3	1
19	water pump	1

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