

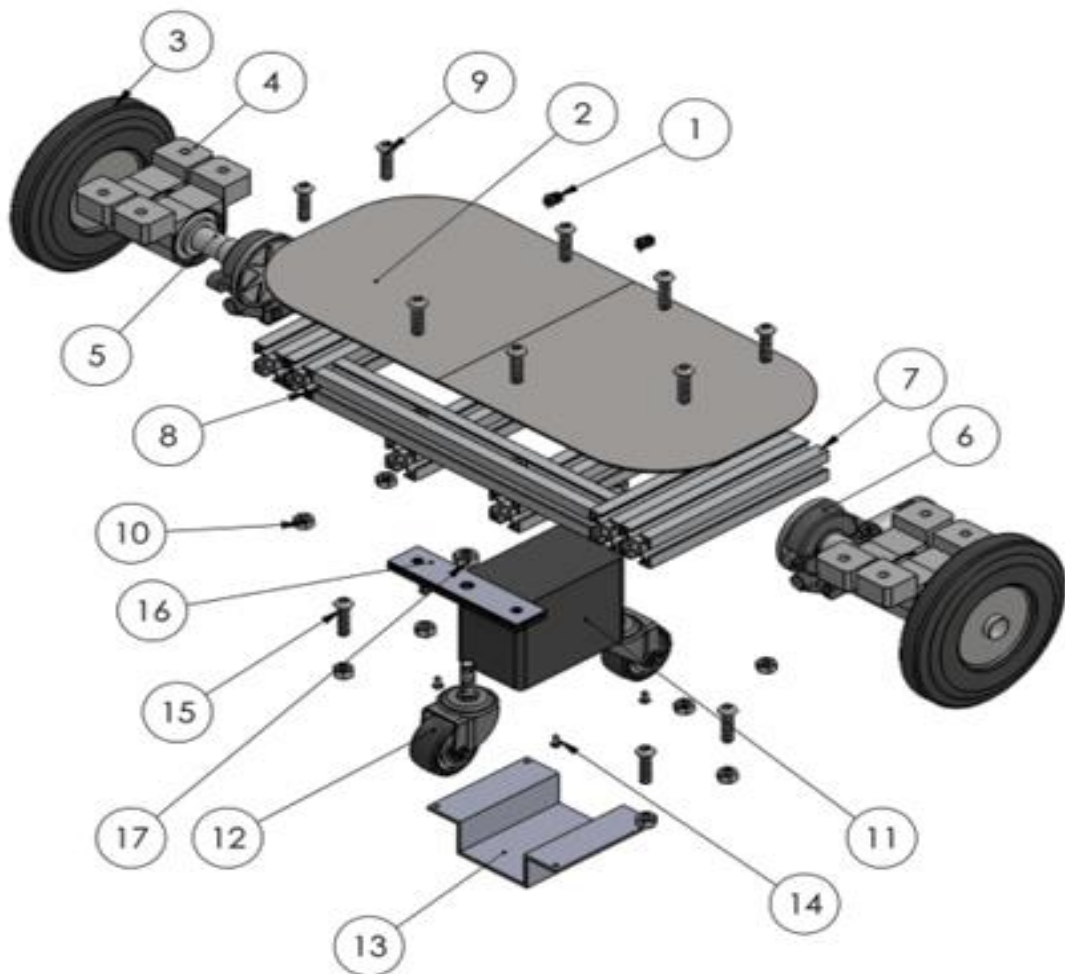
PROTOTYPE DESIGN COLLECTION

SERIES 2



Prototype Design Collection

Series 2



AHMAD NAJMIE RUSLI

**UNIVERSITI TEKNOLOGI MARA CAWANGAN JOHOR
KAMPUS PASIR GUDANG**

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CHIEF EDITOR:

Ahmad Najmie Rusli

CONTENT EDITORS:

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Norhisyam Jenal

Nurrul Amilin Zainal Abidin

Nurulnatisya Ahmad

Radzi Abdul Rasih

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Johor Darul Ta'zim.

Tel: +60 7-381 8493

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 80

Design and Fabrication of Multipurpose Agriculture Machine

Muhammad Muhaimin Haiqal Rozee ¹ and Raja Muhammad Aslam Raja Arif ^{2*}

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

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

PROJECT DESCRIPTION

The cultivation of a crop involves various steps like ploughing, sowing seeds, and sprinkling water. Farmers must use various agricultural equipment and labor to carry out these steps. The purpose of this project is to combine all the individual tools into one machine to provide farmers with multipurpose equipment which implements all the scientific farming techniques, suitable for all types of seed-to-seed cultivation with minimum cost as possible. In front of the machine, there is a plough tool that can do the ploughing process. Next, there is a cylinder container that contains seeds that connects the front wheel with sprockets and chain. Thus, the sowing seeds process will occur when the machine is moving. Furthermore, this machine uses a water pump to sprinkle water. At the back of the machine, there is a covering tool that functions to level the soil. The advantages of this machine are easy to clean and maintain, more economical, and not difficult to operate.

Keywords: *Crop cultivation, Ploughing, Seeds sowing, Water sprinkler*

PROTOTYPE



DESIGN PARAMETER

Bill of Material		
ITEM NO.	PART NUMBER	QTY.
1	body frame	1
2	bottle	2
3	covering tool	1
4	handle	1
5	seed sowing tool	1
6	watering tool	1
7	front tire axle	1
8	tooth	3
9	steel plate	2
10	Wheels	2
11	high roller caster	2
12	watering tool lock	2
13	hinge	2
14	plough lock	1
15	steel rod	1
16	solar panel	1
17	bearing	4
18	plough tool	1
19	sprocket	2
20	inner link	43
21	outer link	43

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 UNIVERSITI TEKNOLOGI MARA (UITM) JOHOR
 KAMPUS PASIR GUDANG**

APPROVED:	CHECKED:
NAME: MUHAMMAD MUHAMMIN HAIGAL BIN ROZEE	
STUDENT ID: 2020610854	
CLASS: J4EM1104L	
DRAWING TITLE: Multipurpose Agriculture Machine	
SCALE 1: 20	SHEET 1 OF 1