

# 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 68

### Automated Adjustable Portable Grill

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#### PROJECT DESCRIPTION

This project focuses on the design and development of an innovative, automatically adjustable, portable grill designed to provide the user with greater convenience, control, and a better grilling experience. Traditional grills often require manual adjustment of heat and grill height, which can be cumbersome and lead to inconsistent grilling results. By introducing automation and portability into the design, this project seeks to provide a versatile and user-friendly solution for outdoor cooking enthusiasts. The adjustable portable grill incorporates advanced mechanical and electronic components to optimize grilling performance. The grill features an exhaust fan for temperature control system that adjusts the heat output based on the user's preferences, ensuring precise and consistent cooking temperatures. In addition, the height-adjustable mechanism allows the grill surface to be easily raised or lowered to accommodate different cooking methods and food types. Extensive testing and validation are performed to evaluate the performance and ease of use of the grill. Cooking tests are conducted with various foods and temperature settings to evaluate efficiency, heat distribution and cooking accuracy. The successful implementation of this product-based project will meet the needs of outdoor cooking enthusiasts, campers, and people with limited space. The adjustable portable grill is a practical, versatile, and efficient solution for grilling, offering better control over cooking temperatures and more flexibility in cooking. This project aims to enhance the grilling experience and make outdoor cooking enjoyable, effortless, and accessible for a wide range of users.

**Keywords:** *Portable, Grill*

#### PROTOTYPE



**DESIGN PARAMETER**



**COURSE NAME : MEC 299 : FINAL YEAR PROJECT 1**

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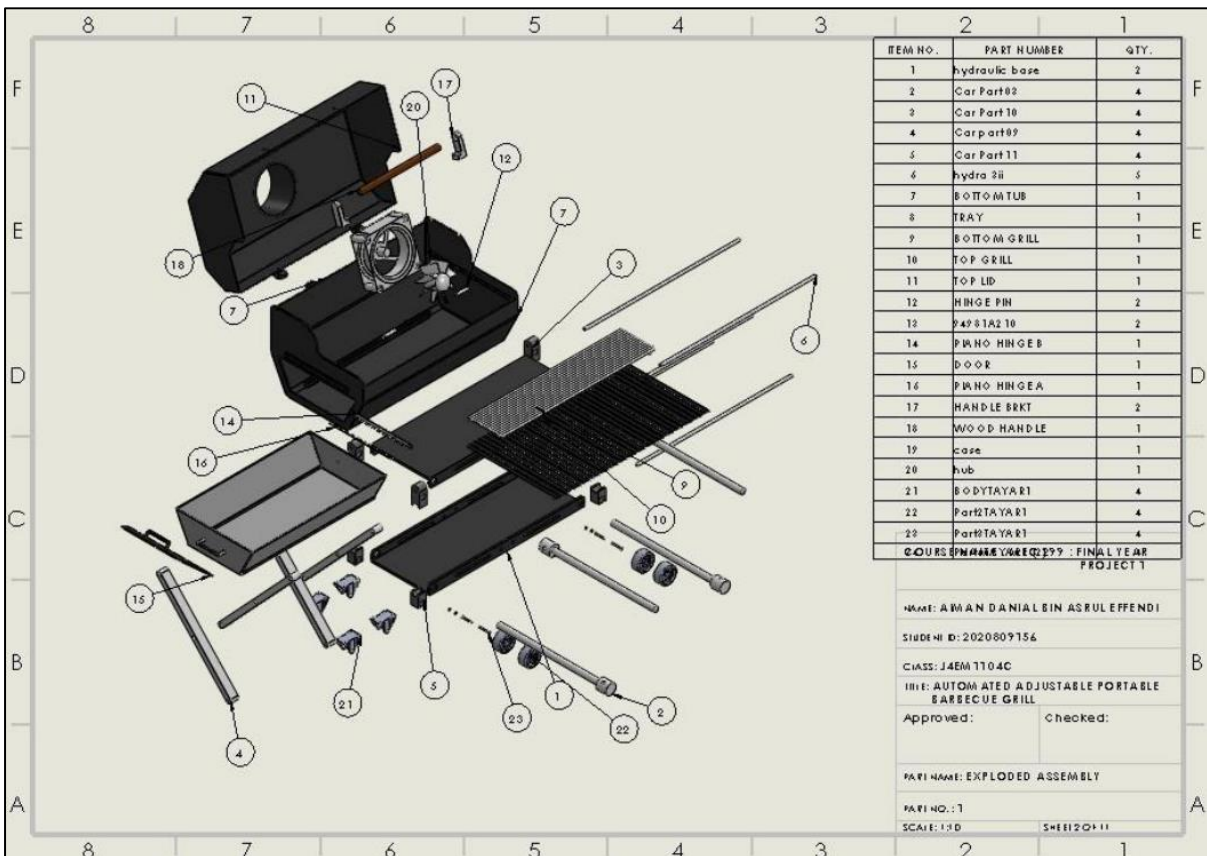
TITLE: **AUTOMATED ADJUSTABLE PORTABLE BARBECUE GRILL**

Approved: \_\_\_\_\_ Checked: \_\_\_\_\_

PART NAME: **EXPLODED ASSEMBLY**

PART NO.: **1**

SCALE: **1:1** SHEET **2** OF **11**



ITEM NO.	PART NUMBER	QTY.
1	hydraulic base	2
2	Car Part#2	4
3	Car Part#10	4
4	Car part#9	4
5	Car Part#11	4
6	hydra 2H	5
7	BOTTOM TUB	1
8	TRAY	1
9	BOTTOM GRILL	1
10	TOP GRILL	1
11	TOP LID	1
12	HINGE PIN	2
13	P4981A210	2
14	PIVOT HINGEB	1
15	DOOR	1
16	PIVOT HINGEA	1
17	HANDLE BRKT	2
18	WOOD HANDLE	1
19	case	1
20	hub	1
21	BODYTAYAR1	4
22	PartTAYAR1	4
23	PartTAYAR1	4

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PART NAME: **EXPLODED ASSEMBLY**

PART NO.: **1**

SCALE: **1:1** SHEET **2** OF **11**