

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

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Nurulnatisya Ahmad

Radzi Abdul Rasih

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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 30

Portable Drill Press Machine

Nurul Afiqah Binti Abu Bakri ¹ and Suhadiyana binti Hanapi ^{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): suhadiyana@uitm.edu.my*

PROJECT DESCRIPTION

This project involves the design and fabrication of a portable drill press machine. The current drill press machines in the market are large, heavy, expensive, and not easily portable. Many individuals cannot afford a drill press machine with table support, which provides stability for handling workpieces. It is challenging to maintain straight drilling lines without proper stability. The portable drill press machine aims to address this issue, particularly for drilling small workpieces. It offers portability like a hand drilling machine but with enhanced features. Compared to existing drill press machines, the portable version is smaller and lighter. The drill can be adjusted manually in the y-axis for upward and downward movement. The machine utilizes a DC motor and a drill chuck, where the motor drives the spindle. This portable drill press machine is both practical and affordable for individuals working on small projects and operating on a limited budget. Fabricating the machine involves processes such as cutting, drilling, and welding.

Keywords: *Drill press, Portable*

PROTOTYPE



DESIGN PARAMETER

