

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 38

Design and Fabrication of Height Adjustable Study Table

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PROJECT DESCRIPTION

Riveting is one of the processes of joining in sheet metal processes. Riveting requires the process of punching or drilling. The riveting process can be either manually or automatically man operated. For small scale riveting, the manual process is chosen because of low in cost. Manual riveting process required manpower to operate using large amount of energy that can lead to inconsistency in terms of precision and time taken to complete. Therefore, the machine is developed to reduce the inconsistency and time taken is manual operated riveting process. The machine is using mild steel plate and bar as the body and pneumatic system for punching and riveting process. The inconsistency in punching was able to be reduce to 0.5% compared to manual process. The time taken to complete the process also being reduce to 10% compared to manual process. In conclusion, the purpose of fabricating this machine is to reduce time consuming and reduce the need for manpower is achieved.

Keywords: *Riveting, Punching, Pneumatic*

PROTOTYPE



DESIGN PARAMETER

