

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 46

Tri-Wheel Trolley with Adjustable Holder

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PROJECT DESCRIPTION

The world right now is full of mechanical things that we use to do work at the office, outdoors, and more. However, there is a situation that requires people to move objects or load them to a higher place using stairs. The best solution for this is elevators, but sometimes there are facilities with no elevator services such as schools, construction sides, and other low buildings. In this project, the aim is to create a mechanism that can transfer objects up or down the stairs. Most hand trolleys are not suitable for stairs because the structure of the wheel of the hand trolley that just suitable for flat ground and the holder of the hand trolley is not adjustable. The target of this project is to create a trolley in an upgrade structure that can lift heavy loads, with an adjustable holder, and most importantly can be used on the stairs. The main objective of this project is to make the trolley user-friendly so the movement will be smooth and can carry heavy loads while climbing the stairs. In this project, we will use the dynamic method for the movement of the trolley, strength, and static method to know how strong the structure of the trolley is. The trolley is practical because of the upgrade and is more effective in real life.

Keywords: *Hand trolleys, Adjustable holder*

PROTOTYPE



DESIGN PARAMETER

