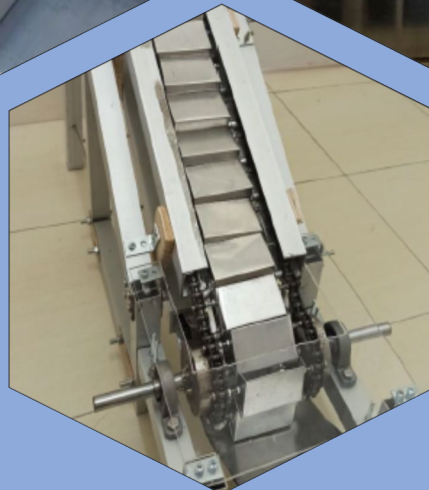
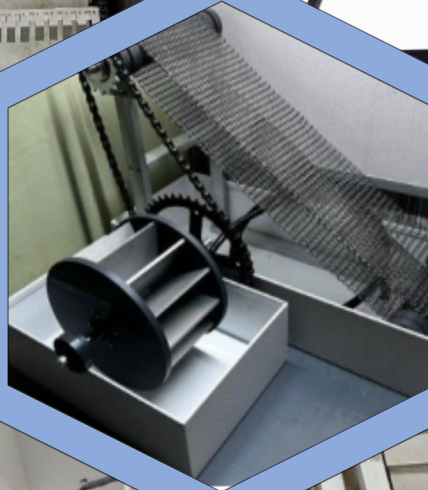


# PROTOTYPE DESIGN COLLECTION

## SERIES 1



# FOREWORD

This digital book on Prototype Design Collection Series 1 (PDC Series 1) 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 57

### Design, Analysis and Fabrication of Hydraulic Jack

Ammar Bin Azman and Suhadiyana Hanapi

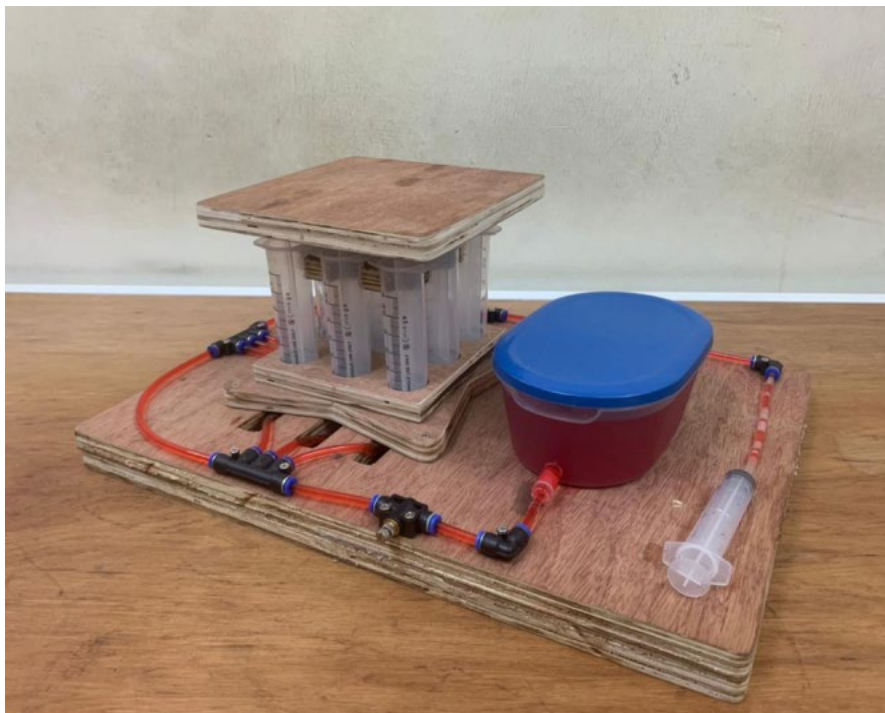
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#### PROJECT DESCRIPTION

The invention of a hydraulic jack started as early as in the 17th century, and it has gone through lots of remarkable improvements. This product plays a very important role in everyday life especially for car owners. A hydraulic jack is a device used to lift heavy load or objects, thus allowing users to proceed with their further actions. A classic example is during replacing car tires that requires to lift up the vehicle. Nowadays, there are a lot of complaints regarding a hydraulic jack being too heavy and big, making it difficult to handle. So, this project intends to produce a simple hydraulic jack that is compact, lightweight, and portable, as well as being affordable. Hence, this project outlines the design, analysis, and fabrication of this hydraulic jack by undergoing several steps that include conducting a survey, brainstorming, and sketching several design concepts, embodiment design phase of the selected concept, and finally its fabrication with the desired measurement and specification. The hydraulic jack ultimately aims to provide a better and more user-friendly hydraulic jack that can be used by everybody with minimal difficulties due to the product being compact, lightweight, and portable.

**Keywords:** *hydraulic jack*

#### PROTOTYPE



**DESIGN PARAMETER**

