

# PROTOTYPE DESIGN COLLECTION

## SERIES 2





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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 112

### Experimental Investigation on The Generation of Electrical Power Using Gymnasium Bicycle

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#### PROJECT DESCRIPTION

Energy is everywhere in our surroundings which exist in many forms. This project aims to convert human wastage energy to green electrical energy through a kinetic- electrical device by the end of project. The problems usually face are a lot of energy wastage and over-consumption of energy. This situation normally can be seen in the gyms as it consumes excessive use of electrical energy due to the number of electrical devices the buildings have. Thus, the objective of this project is to design and fabricate a gymnasium bicycle electric generator based on the amount of peddling for the user has does on the gymnasium bicycles. Its methodology is to use the force generated by the user to move the AC generator to generate electricity. It will be connected to bridge rectifier circuit for increase of output. The usage of this product can be beneficial through conserving energy and prevent meaningless over-consumption of energy needed in operation of that area. In conclusion, this can be used as a secondary power source or serve as a backup storage power device.

**Keywords:** Waste energy; Bicycle electric generator; Bridge rectifier; Voltage output

#### PROTOTYPE



**DESIGN PARAMETER**

