

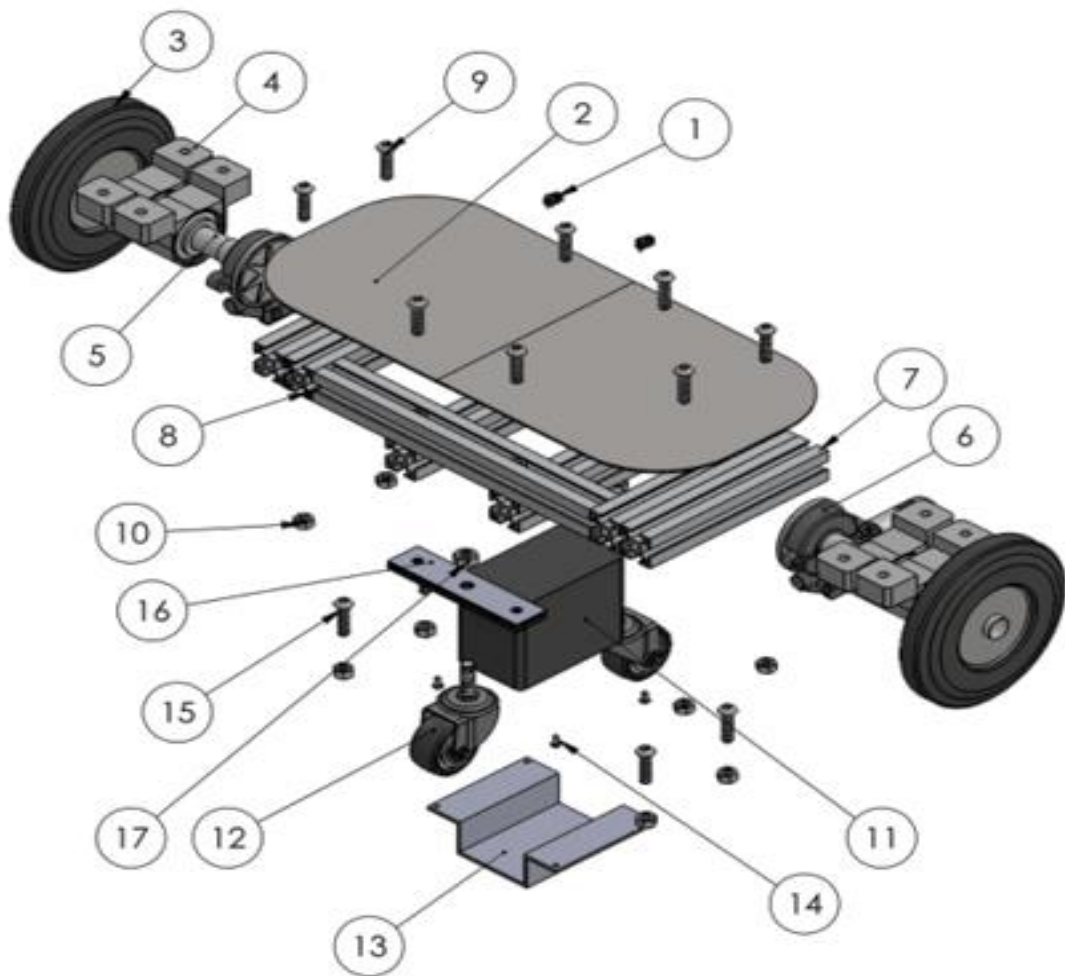
# PROTOTYPE DESIGN COLLECTION

## SERIES 2



# Prototype Design Collection

Series 2



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**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 42

### Design and Fabrication of Motorised Sieving Machine

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#### PROJECT DESCRIPTION

Sand is a vital material in various sectors, particularly in agricultural practices. In the backdrop of globalization, machinery has been developed for the purpose of sieving sand to extract a higher purity of sand particles, free from impurities such as stones. However, it is noteworthy that these sand sieving machines have predominantly targeted industrial applications, leaving a gap in providing user-friendly solutions for domestic or home-based operations. The primary objective of this project is to design and develop a sand sieving machine tailored for home use, emphasizing user ergonomics while maintaining the machine's functionality. This endeavor incorporates the systematic use of morphological charts and Pugh charts to scrutinize and refine the final design of the machine. The outcome of this research indicates that the machine may not meet the stringent standards of industrial counterparts but is poised to effectively fulfill its intended purpose. It can be conclusively asserted that this project represents a success, as the machine serves its core function: the sieving of sand from stone, thereby contributing to streamlining domestic sand processing operations, particularly in agricultural contexts. The machine offers a practical solution for those seeking to improve sand quality for various applications within a home or small-scale setting.

**Keywords:** *Sieving, Sand*

#### PROTOTYPE



**DESIGN PARAMETER**

