

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 130

Design and Fabrication of an Automated Mini Hacksaw

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PROJECT DESCRIPTION

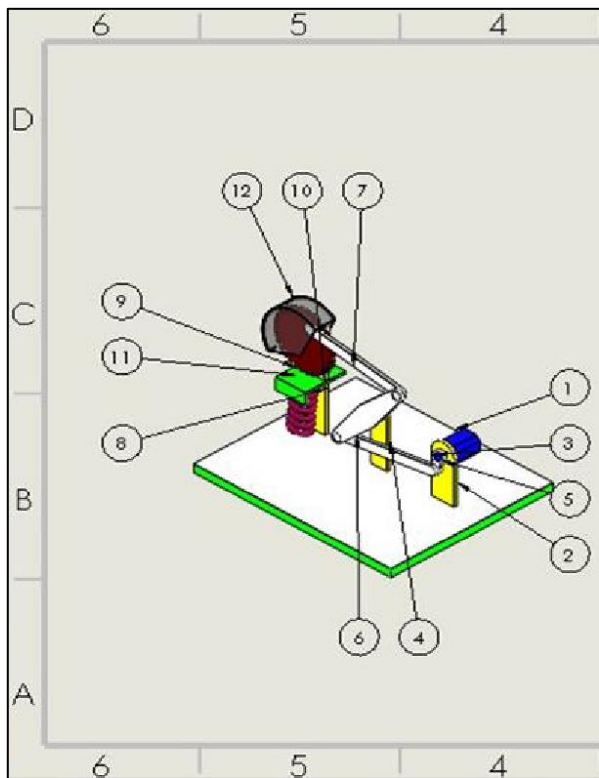
The problem with the hacksaw that already exist is that the hacksaws are too heavy that sometimes it need two people to push and pull it. Thus, this project is to develop a light mini hacksaw machine and portable that will reduce the cost to own it at home or at works place. In this project, the output of a beam engine is used to drive a reciprocating saw to cut timber. Here, instead of the rotating fly wheel, it is intended to have a rotating reciprocating saw. This rotating reciprocating saw is used to cut timber. Reciprocating saws driven with electric power are a common feature. But in places where electricity is scarce, or absent, it is difficult to operate these Equipment's. But since the beam engine powered saw runs on fuel, it can be operated even in places where electricity is totally absent. As a summary, this product is portable and so light that they can move it anywhere that they want to. The product will not consume a large amount of energy, so it doesn't have to use a big motor and battery. Because of that, it will reduce the cost as much as possible to maintain this portable project.

Keywords: *Mini hacksaw, Portable, Light weight, Beam engine, Low cost*

PROTOTYPE



DESIGN PARAMETER



ITEM NO.	PART NUMBER	QTY.
1	BODY	1
2	BEAM HOLDER	1
3	BEAM ENGINE	1
4	CENTER HOLDER	1
5	RAFA AT BEAM ENGINE	1
6	BODY GPM	1
7	CONNECTING ROD	2
8	BLADE HOLDER	1
9	BLADE	1
10	PLATE	1
11	SPRING	1
12	BLADE COVER	1

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DRAWING TITLE: MINI HACKSAW MACHINE

SCALE: 1:1 SHEET 1 OF 1