

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 31

Design and Fabrication of 3 in 1 Foldable Hand Trolley

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PROJECT DESCRIPTION


The project "Design and Fabrication of 3 in 1 Foldable Trolley" that has been proposed comes from facing difficulties when trying to move a lot of heavy items while using a regular trolley. Older people who use a regular trolley to move heavy items can experience backaches. This 3 in 1 foldable trolley project's target is to facilitate and save energy for users. This project intends to design and fabricate a 3 in 1 foldable hand trolley to consume less energy, especially for workers or people who need to lift a lot of heavy items daily. This 3 in 1 trolley has three styles to lift items. For this project, the most suitable and affordable material is steel as the main material. Other than that, such as rubber tires and non-slip fabric for the handle. There is also an idea about putting a pedometer in the trolley to record the distance traveled and even how many calories were burned. The objectives of this project are to upgrade a regular trolley to one that can make lifting heavy items easier and more comfortable. Hopefully, this project will achieve its objectives.

Keywords: *Trolley, SME, Innovation*

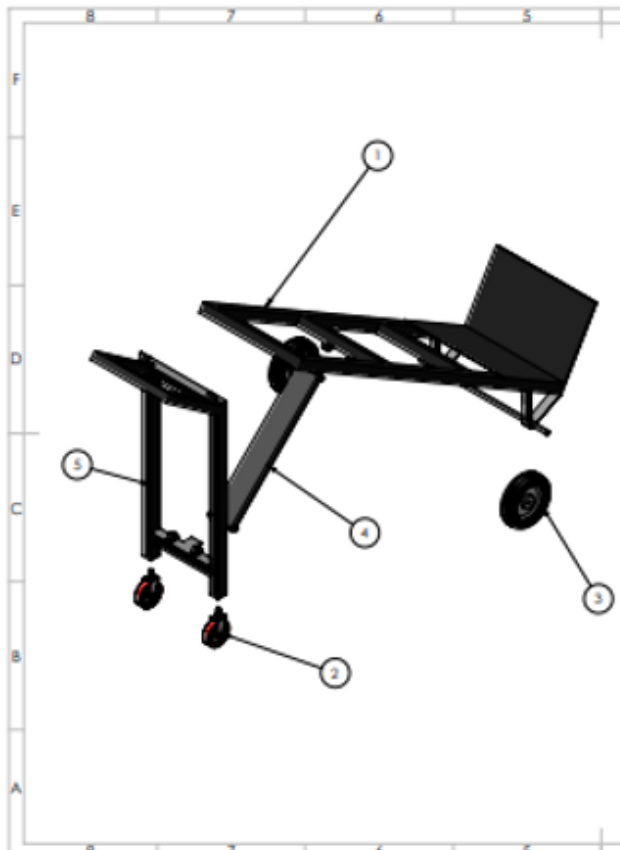
PROTOTYPE



DESIGN PARAMETER



FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UITM) JOHOR KAMPUS PASIR GUDANG				
Course name:		MEC300:FINAL YEAR PROJECT 2 SESSION: OCTOBER 2022 - FEBRUARY 2023		
Group:		J4EM1105D		
Approved		Checked		Drawn Amir Hassan Shamsul Eazam 20/1/2023
Drawing title: Assembly of 3 in 1 foldable hand trolley				
Part name: -				
Part no.: -				
Rev: 0	Scale 1: 10	Projection: -	Weight: 40Kg	Sheet 1/1



ITEM NO.	PART NUMBER	Description	QTY.
1		Main frame	1
2		CASTER WHEEL	2
3		rubber tire	2
4		Connector	1
5		Second frame	1

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Group:		J4EM1105D		
Approved		Checked		Drawn Amir Hassan Shamsul Eazam 20/1/2023
Drawing title: Exploded assembly of 3 in 1 foldable hand trolley				
Part name: -				
Part no.: -				
Rev: 0	Scale 1: 10	Projection: -	Weight: 40Kg	Sheet 1/1