

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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CHIEF EDITOR:

Ahmad Najmie Rusli

CONTENT EDITORS:

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Hazriel Faizal Pahroraji

Norhisyam Jenal

Nurrul Amilin Zainal Abidin

Nurulnatisya Ahmad

Radzi Abdul Rasih

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Tel: +60 7-381 8493

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 60

Drone Rigs for Farmers

Muhammad Irham Haikal Bin Mohamad Rashid ¹ and Azizul Hakim Bin Samsudin ^{2*}

^{1,2}*Mechanical Engineering Studies, College of Engineering, Universiti Teknologi MARA
Johor Branch, Pasir Gudang Campus, 81750 Masai, Bandar Seri Alam, Johor Darul Ta'zim.*

**Corresponding author (e-mail): azizulhakim@uitm.edu.my*

PROJECT DESCRIPTION

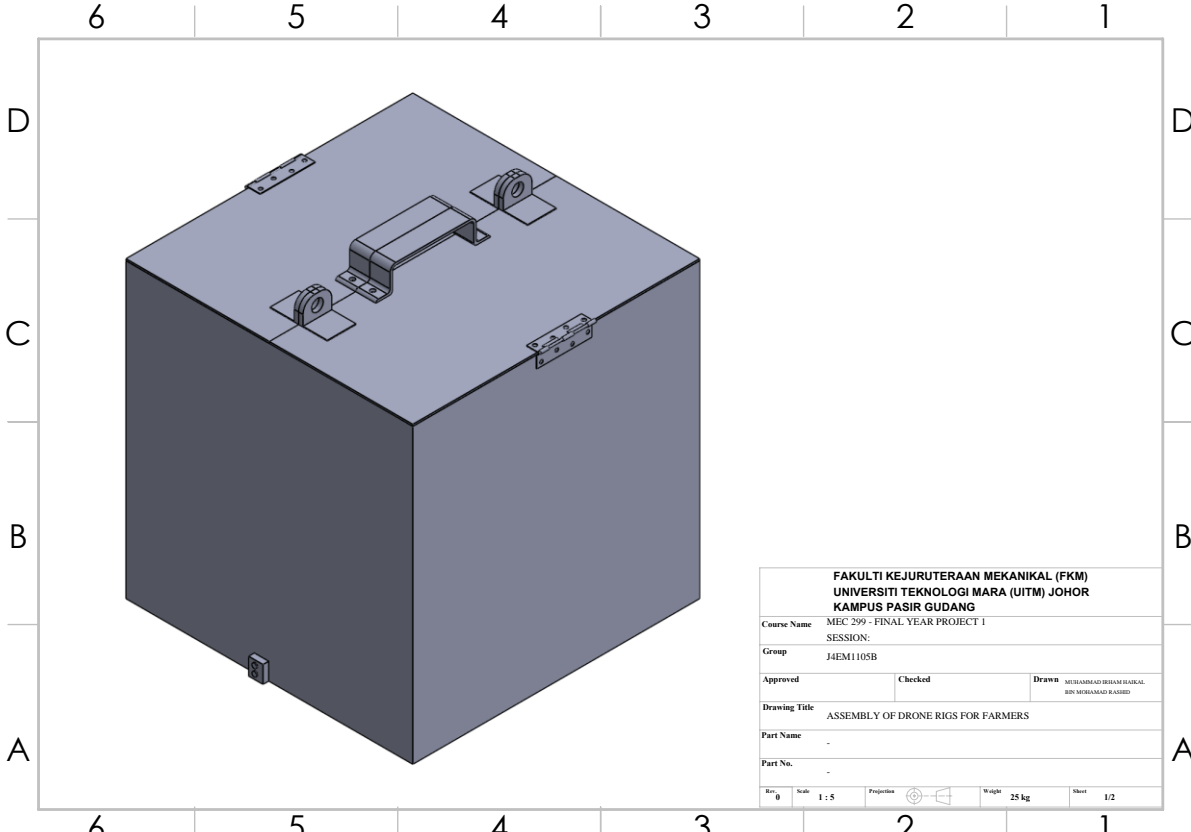
The use of drone in agriculture have been widely used by the farmers to fertilize their crops in a wide area. However, there is lack in terms of handling the drone after fertilizing the crops where there is no storage available to store the drone. Therefore, this project will develop a drone rig specially used to store a drone. Morphological approach was used to determine the proper design of the drone rigs for farmers. Meanwhile, torque theory was used to determine the optimal sizing of the motor to flip open and flip close of the drone rigs door. SOLIDWORK was used to perform the stress and deformation analysis towards the frame of the product. The results of the calculation were able to determine the optimal size of motor to flip open and flip close of the drone rigs door. Furthermore, the output of the analysis using SOLIDWORK also shows positive results where no failure indicator appears in the stress and deformation analysis. To conclude, this drone rigs for farmers was successfully designed, fabricated. and works perfectly. This product has been tested and it has achieved the goal and objective of this project.

Keywords: *Drone, Storage, Farmers, Fertilizers*

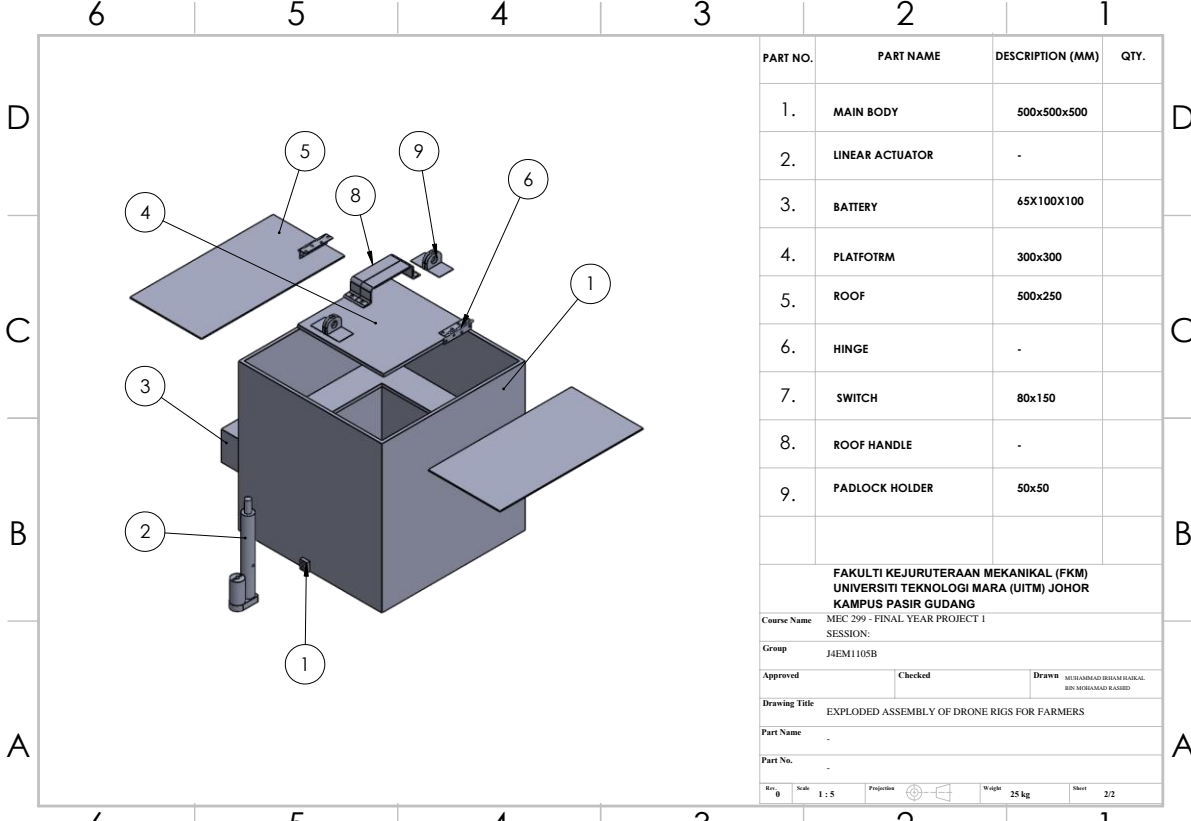
PROTOTYPE



DESIGN PARAMETER



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Course Name: MEC 299 - FINAL YEAR PROJECT 1			
SESSION:			
Group: J4EM1105B			
Approved:	Checked:	Drawn: MEHAMMAD BISHAM BUKAL BIBI MOHAMMAD BASHID	
Drawing Title: ASSEMBLY OF DRONE RIGS FOR FARMERS			
Part Name: -			
Part No.: -			
Rev: 0	Scale: 1:5	Projection:	Weight: 25 kg Sheet: 1/2



PART NO.	PART NAME	DESCRIPTION (MM)	QTY.
1.	MAIN BODY	500x500x500	
2.	LINEAR ACTUATOR	-	
3.	BATTERY	65X100X100	
4.	PLATFOTRM	300x300	
5.	ROOF	500x250	
6.	HINGE	-	
7.	SWITCH	80x150	
8.	ROOF HANDLE	-	
9.	PADLOCK HOLDER	50x50	

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SESSION:			
Group: J4EM1105B			
Approved:	Checked:	Drawn: MEHAMMAD BISHAM BUKAL BIBI MOHAMMAD BASHID	
Drawing Title: EXPLODED ASSEMBLY OF DRONE RIGS FOR FARMERS			
Part Name: -			
Part No.: -			
Rev: 0	Scale: 1:5	Projection:	Weight: 25 kg Sheet: 2/2