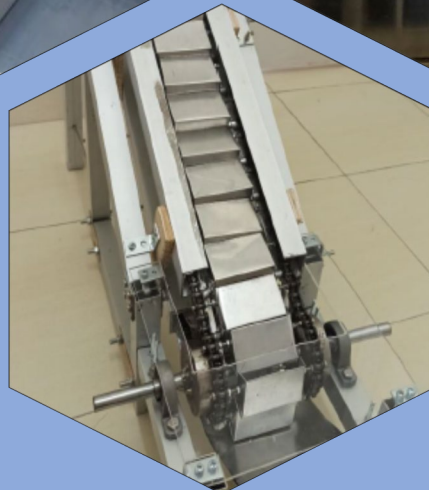
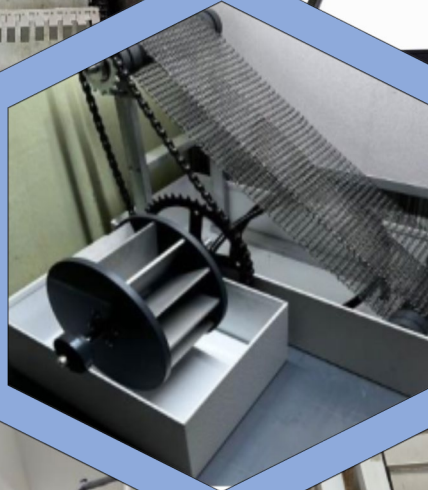


PROTOTYPE DESIGN COLLECTION

SERIES 1



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CHAPTER 12

Mechanical Rice Washer

Schufee Amani Bin Suhaime and Azizul Hakim Bin Samsudin

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PROJECT DESCRIPTION

A common method used to wash rice is by hand. There is a high probability that this method causes the rice to be washed uncleanly and it takes time to clean the rice. To overcome this problem, a mechanical rice washer will be designed, fabricated, and tested. Morphological approach was used to determine the proper design of the rice washer and its blade. Meanwhile, torque theory was used to determine the optimal sizing of the motor to rotate the blade. 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 rotate in a situation of a rice with weight 0.5kg inside the container. 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 mechanical rice washer was successfully designed, fabricated, and works perfectly. This product has been tested and it has reduced the time taken to wash the rice.

Keywords: *Rice washer machine, Torque, SOLIDWORK*

PROTOTYPE



DESIGN PARAMETER

FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UITM) JOHOR KAMPUS PASIR GUDANG				
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Group J4EM1105B				
Approved DR. AZIZUL HAKIM BIN DAMJUDIN 03/03/2022	Checked DR. AZIZUL HAKIM BIN DAMJUDIN 03/03/2022	Drawn SCHUFEE AMANI BIN DUHARIE 03/03/2022		
Drawing Title ASSEMBLY OF MECHANICAL RICE WASHER				
Part Name -				
Part No. -				
Rev. 0	Scale 1:4	Projection	Weight 3.30kg	Sheet 2/4

ITEM NO.	PART NUMBER	QTY.
1	A3 STEEL (L330-W10-H10)mm	4
2	A1 STEEL (L540-W10-H10)mm	2
3	A2 STEEL (L300-W10-H10)mm	7
4	A4 STEEL (L400-W10-H20)mm	1
5	A5 STEEL (L400-W10-H20)mm	1
6	RIGHT ANGLE MOUNTING BRACKETS	1
7	M4 HEXAGON NUT	6
8	M8 LINEAR SHAFT ROD	1
9	RS-775 DC MOTOR	1
10	SCREW M4-10mm	2
11	SCREW M4-20mm	6

FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UITM) JOHOR KAMPUS PASIR GUDANG				
Course Name MEC300 - FINAL YEAR PROJECT 2 SESSION: OCTOBER 2021 - MARCH 2022				
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Drawing Title EXPLODED ASSEMBLY OF MECHANICAL RICE WASHER				
Part Name -				
Part No. -				
Rev. 0	Scale 1:9	Projection	Weight 3.30kg	Sheet 3/4