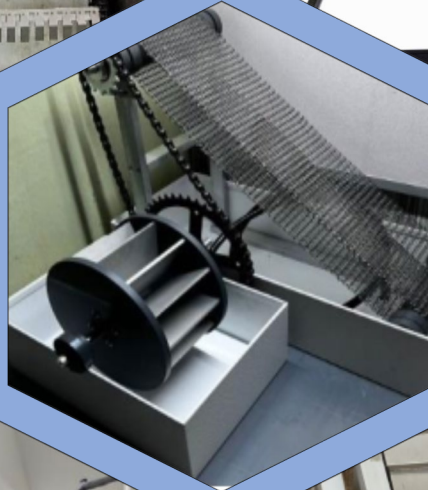


# PROTOTYPE DESIGN COLLECTION

## SERIES 1



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## CHAPTER 77

### Design, Analysis and Fabrication of Wheel Dolly Jack

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#### PROJECT DESCRIPTION

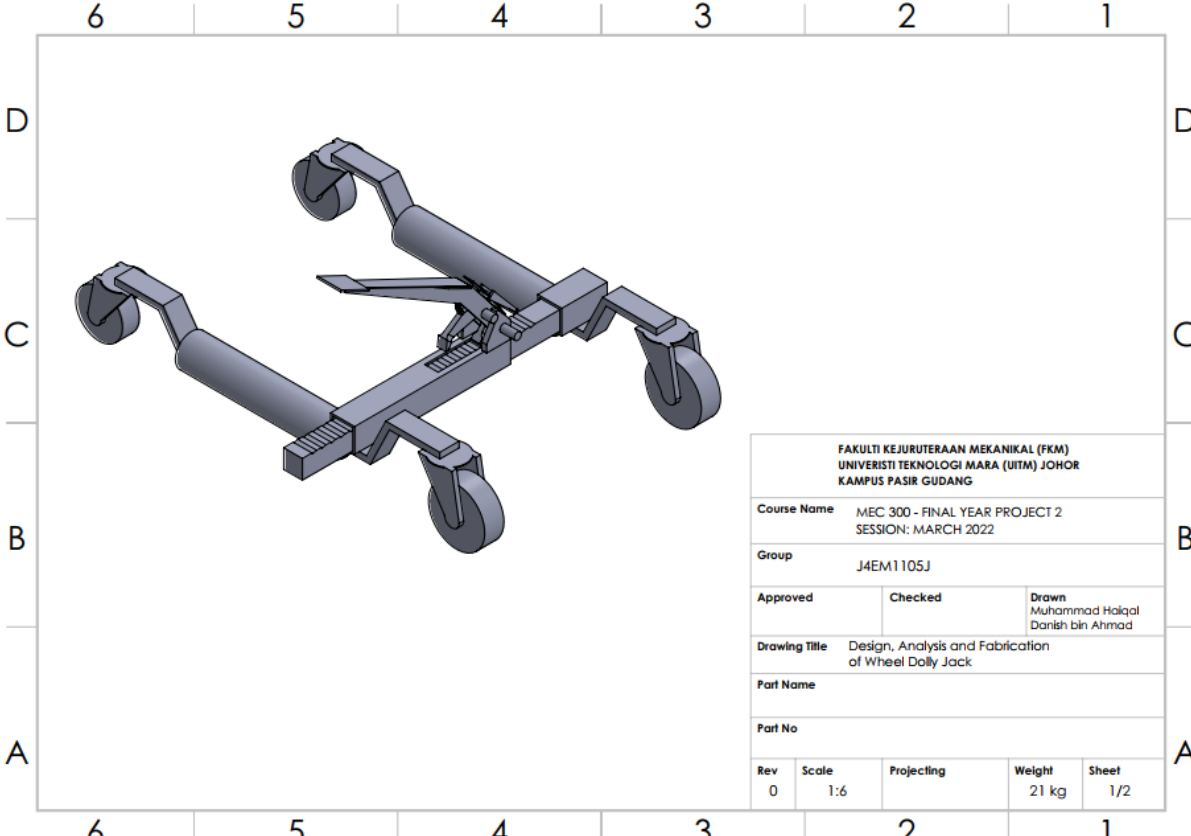
Jack is a device that uses a mechanical mechanism to amplify force in order to lift heavy objects beyond human capabilities. Wheel dolly jack is an advanced variant of jack that has the ability to lift and move the vehicle. To use the wheel dolly jack, the user must first extend the wheel dolly jack and slide it under the vehicle's wheel. Then, turn the lock handle so the wheel dolly jack won't extend when used. Press the foot pump repeatedly to retract the cylinders slowly and clamp the vehicle's wheel. The cylinders will push and lift the vehicle's wheel. The results of testing show that the prototype is able to lift compact and midsize class vehicles but unable to lift large class vehicles. The prototype is also unable to descent the lifted wheel which is an unforeseen factor of the project. This problem can be solved with the use of lubricant. It is also difficult to see the full potential of the wheel dolly jack since we only have 1 prototype when the standard use requires a 4-wheel dolly jack. The results show that the prototype is far from perfect with plenty of room for improvement.

**Keywords:** *Dolly jack*

#### PROTOTYPE



**DESIGN PARAMETER**



6 5 4 3 2 1

D D

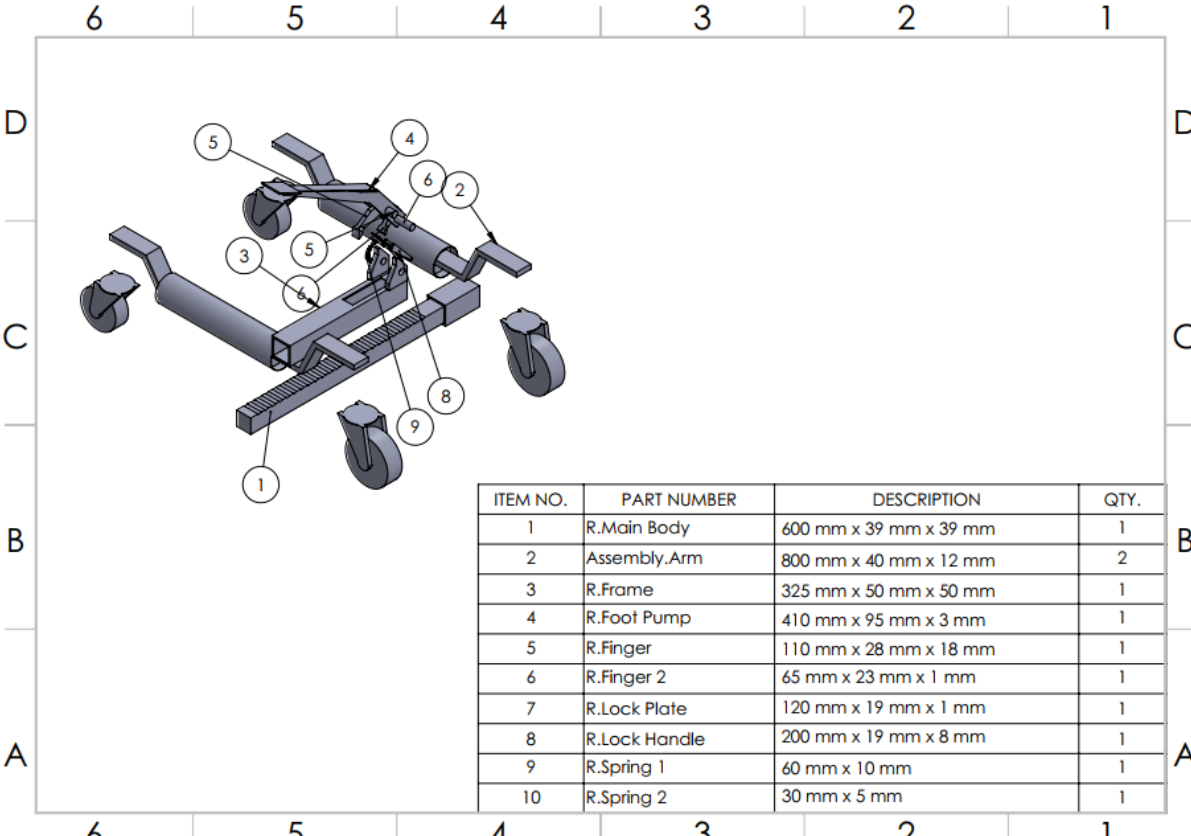
C C

B B

A A

6 5 4 3 2 1

FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UITM) JOHOR KAMPUS PASIR GUDANG				
Course Name		MEC 300 - FINAL YEAR PROJECT 2 SESSION: MARCH 2022		
Group		J4EM1105J		
Approved	Checked	Drawn Muhammad Haqal Danish bin Ahmad		
Drawing Title Design, Analysis and Fabrication of Wheel Dolly Jack				
Part Name				
Part No				
Rev	Scale	Projecting	Weight	Sheet
0	1:6		21 kg	1/2



6 5 4 3 2 1

D D

C C

B B

A A

6 5 4 3 2 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	R.Main Body	600 mm x 39 mm x 39 mm	1
2	Assembly.Arm	800 mm x 40 mm x 12 mm	2
3	R.Frame	325 mm x 50 mm x 50 mm	1
4	R.Foot Pump	410 mm x 95 mm x 3 mm	1
5	R.Finger	110 mm x 28 mm x 18 mm	1
6	R.Finger 2	65 mm x 23 mm x 1 mm	1
7	R.Lock Plate	120 mm x 19 mm x 1 mm	1
8	R.Lock Handle	200 mm x 19 mm x 8 mm	1
9	R.Spring 1	60 mm x 10 mm	1
10	R.Spring 2	30 mm x 5 mm	1