



FABRICATION OF STRETCHER CUM WHEELCHAIR



Mahatma Gandhi Missions College
of Engineering & Technology

Student name: *Shubhanshu Dhakate , Shubham Verma , Ripudaman Singh, Siddhant Kathait*
Department of Mechanical Engineering

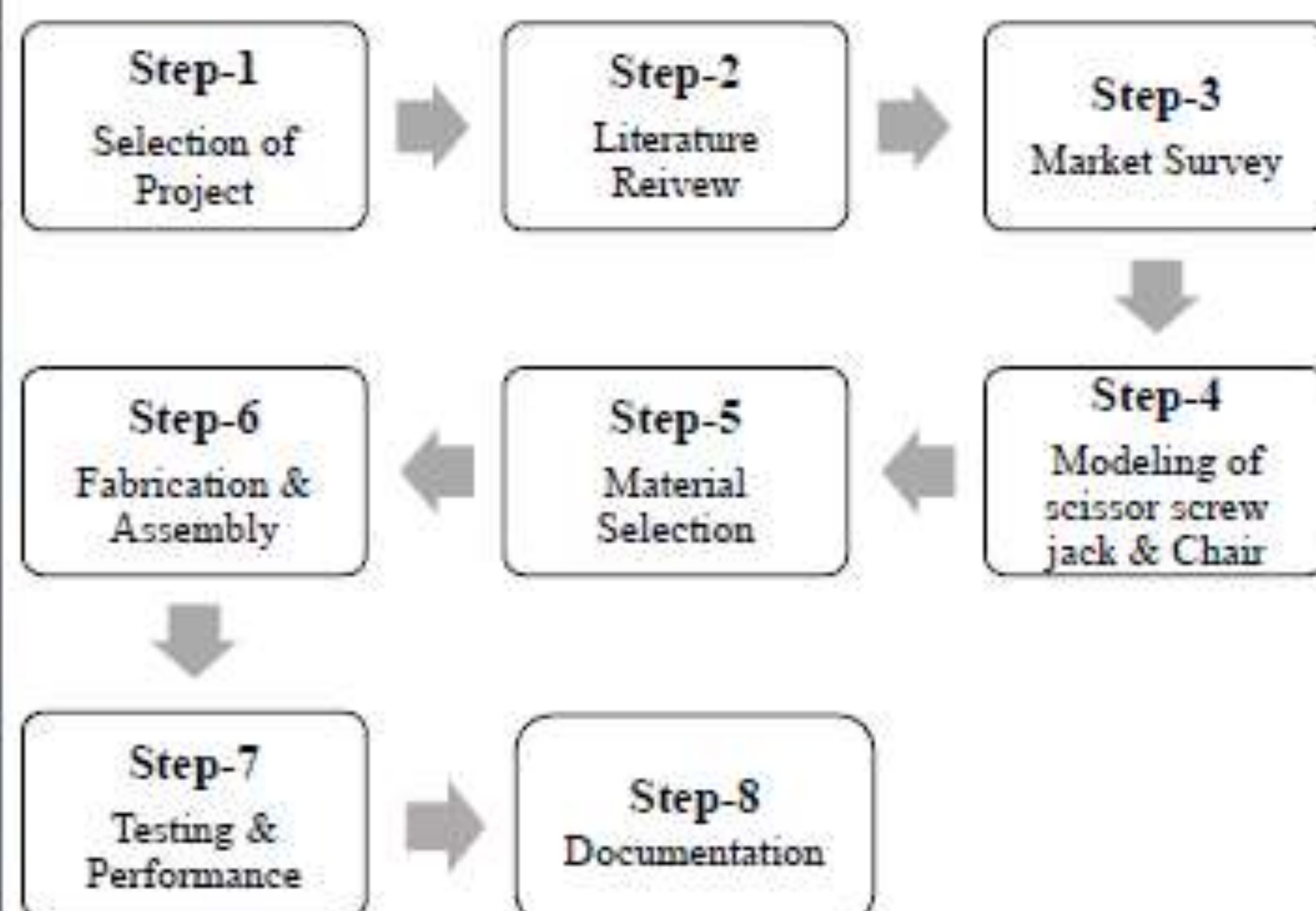
Introduction

- A wheelchair is a wheeled mobility device in which the user sits.
- The device is propelled by manually or automatically.
- About 650 million people are suffering from disability.
- New and modified wheelchairs can satisfy the need of disable people.

Project Objectives

- Increases the comfort level of patient and patient handling staff.
- Prevent damages to patient while transferring from wheelchair to stretcher.
- Easily converts from wheelchair to stretcher & vice versa.
- Emergency & serious patients who should not be moved or disturbed from their position can be shifted.
- Shifting of patient is reduced i.e. stretcher is not needed anymore.

Methodology



Results and Discussion

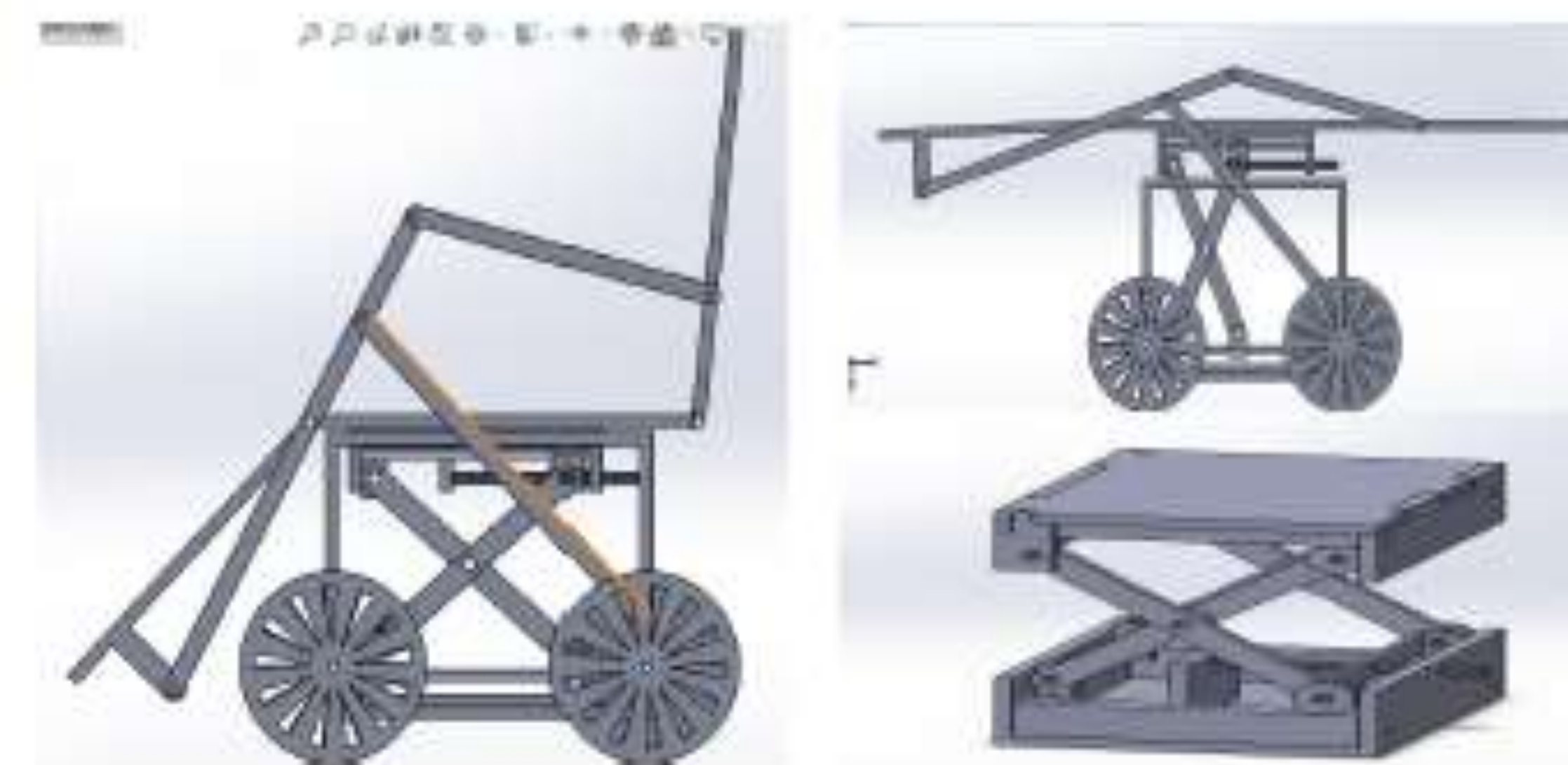
- After successful pull up to 40 kg, people with weight around 50 kg and 70kg were made to sit on the wheelchair. The motor was able to lift both the weights but for the proper conversion of wheelchair into stretcher, we have to increase the strength of the lead screw, since the lead screw was performing well for the weight of 40kg at the testing time.
- Below table result showing wheelchair efficiency on different load at different condition.

Loading Condition	Load On Wheelchair	Time (Sec)	Result
On flat surface	No load	22	Successful
	10kg	20	Successful
	20kg	18	Successful
	40kg	17	Successful
	50kg	18	Slight Change

Design parameters

Sr. No.	Parts	Dimension (In cm) (L*B*H)	Parts	Dimension (In cm)
Wheel Chair		Scissor Screw Jack		
1	Back Rest	60*50	Jack Width	40
2	Seat	60*50	Jack Length	50
3	Leg Rest	55*50	Sliding Plate Length	40
4	Base Frame	52*50*45	Cross Link length	45
5	Arm Rest	52	Lead Screw	30
6	Supporting Link	69		
7	Leg Link	87		

IMAGES



Conclusions

- For disable patient, it will work both wheelchair as well as stretcher.
- For the cost reducing purpose, a new design of wheelchair cum stretcher for patient handling has been done.
- For avoiding manual operation, we made it automated convertible from wheelchair to stretcher.

References

1. R. Ahmed, S. A Razackl, S. Salam, K.V. Vishnu and C. R.P. Vishnu, "Design and Fabrication of Pneumatically Powered Wheel Chair-Stretcher Device", International Journal of Innovative Research in Science, Engineering and Technology, Vol.4, Issue 10, October 2015.
2. T.J. Alexander B. Martin, J.S.T. Rao and A. Ali, "Development of a Transformable Electrically Powered Wheel Chair into a Medical Emergency Stretcher", International Journal of Pharmacy and Technology, Vol.8, Issue No.2, June 2016.

GUIDED BY : DR. RAM PRAKASH
ASSOCIATE PROFESSOR
(DEPT.OF MECHANICAL ENGINEERING)