



Design and Fabrication of Automatic Wheelchair cum Stretcher/Bed

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Abstract: In this time of changing advancement there are a seriously enormous number new headways created in clinical field. The improvement in cover disciplinary science give new cravings to really debilitated people. In this task we endeavor to cultivate a wheel seat cum bunk fiscally. This paper reveals the arrangement and production of wheel seat cum bunk which helps the manager with doing whatever it takes not to significant lift conditions that put their back at risk for injury, and grant the regulator more energy close to the completion of the typical work day. This is a all around arranged aiding device for the really tried patients who can't move from their bed unreservedly. This device involves essential mechanical and pneumatic control part which doesn't require gifted individuals to work. The primary goal is to convey a device for moving patients in a convincing and pleasing way for the patient and the manager, and have low creation cost stood out from existing model where the plan is same.

Keywords: Wheel Chair Cum Stretcher; Mechanical And Pneumatic Control Mechanism.

I. INTRODUCTION

A seat with wheels planned as a substitution for strolling is known as wheel seat. This is utilized for development of genuinely crippled, senior individuals, youngsters who experience issues and can't walk. This gadget comes in numerous varieties like selfimpelled, moved by the engine or with the assistance of a participant to push. Seats are used to move the patients starting with one ward then onto the next in emergency clinics and starting with one room then onto the next at home, as a walker for individuals who can't walk. Figure shows not many circumstances where wheel seats are utilized. The assessment gets an uncommon change the field of clinical convenience devices in latest two or three numerous years. Wheel seat is one of the most notable adaptability devices comprehensively used by crippled people. Flexibility helps are significant for patients for transportation and a trade for walking especially in indoor and outside environment. Wheelchairs and bed are the most by and large elaborate clinical equipment for the transportation of patients. Moving the patients from wheelchair to bunk or to the clinical bed is reliably an issue for the subject matter expert or sustain. Understanding the various issues concerning the adaptability gear and introducing a predominant arrangement will be an asset for the clinical field and some help for impeded individuals. There is a prerequisite for a wheelchair cum bed to work with the debilitated patient's flexibility and to give novel clinical equipment to use in the clinical facilities.

II. LITERATURE SURVEY

1) **Author :** Mohammed Hayyan Al Sibai a , Sulastr Abdul Manap .

Observations : They done research on problems of physically disabled persons & suggested use of Smart wheelchair, artificial intelligence, robotics, Embedded systems, smartphones to solve the problems of this peoples.

2) **Author :** Ali Ebrahimi , Alireza Kazemi , Azin Ebrahimi³.

Observations : They researched on parameters that should be considered to design and manufacture wheelchairs. Special attention is given to how Quality Of Life(L) should be maintained for physically disabled persons.

3) **Author :** Takashi Gomi and Ann Griffith.

Observations : They have done brief survey of research in the development of autonomy in wheelchairs is presented and AAI's



R&D to build a series of intelligent autonomous wheelchairs is discussed.

4) **Author** : Martin Saebu.

Observations : He Researched about physically disabled person’s daily activities, exercises & mobility done and also stated review on literatures published which correlates with this.

5) **Author** : PROF.R.S. NIPANIKAR, VINAY GAIKWAD.

Observations : This project is on automatic wheelchair for physically disabled people. A dependent user recognition voice system and ultrasonic and infrared sensor systems has been integrated in this wheelchair. In thisway, we have obtained a automatic wheelchair which can be driven using voice commands and with the possibility of avoiding obstacles by using infrared sensors and down stairs or hole detection by using ultrasonic sensors.

III. METHODOLOGY

This study would be consisting of following chronological step of working:

1. Literature study
2. Project identification
3. Project literature study
4. Field work (automobile station)

Proposed Layout Structure Analysis

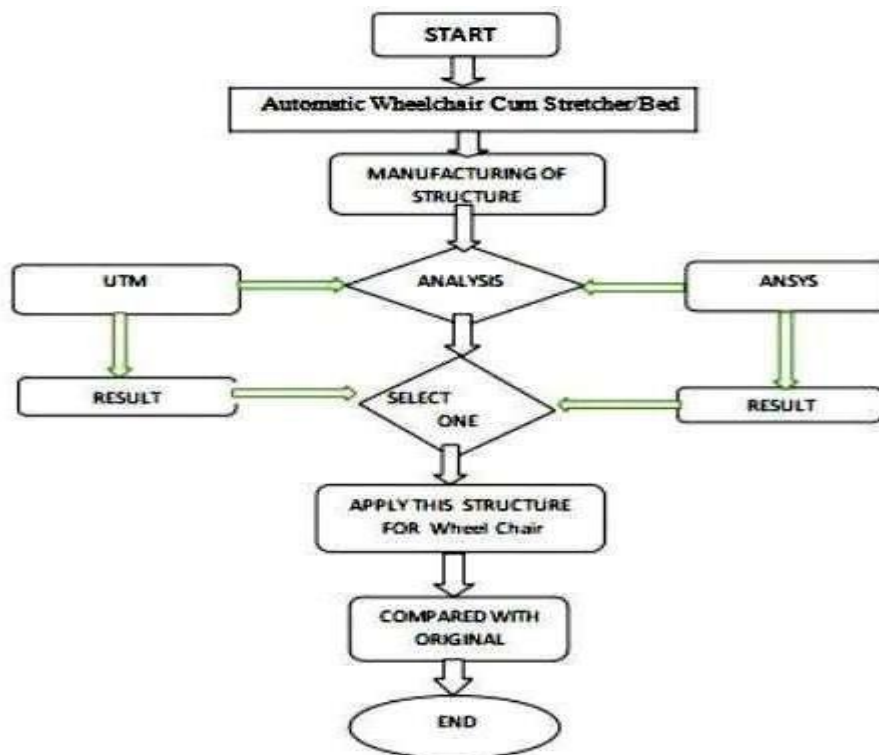


Fig no.1 (Structure Analysis)

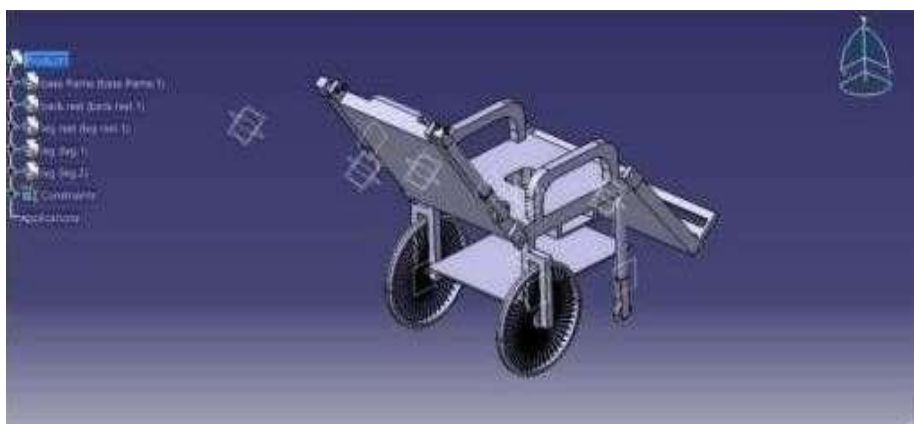
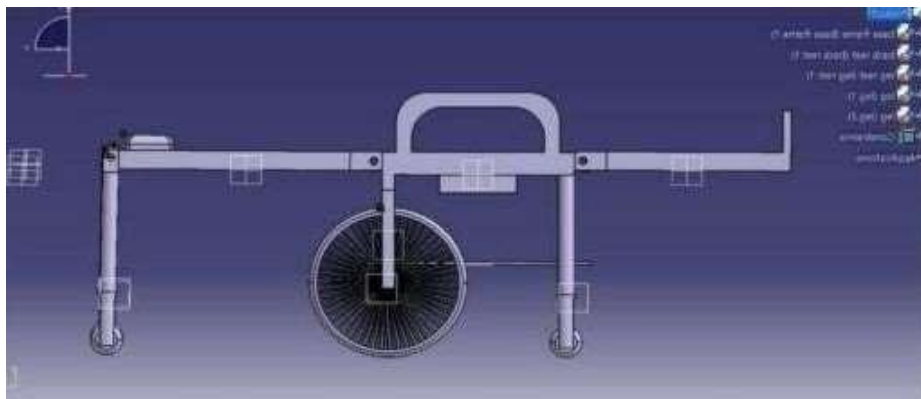
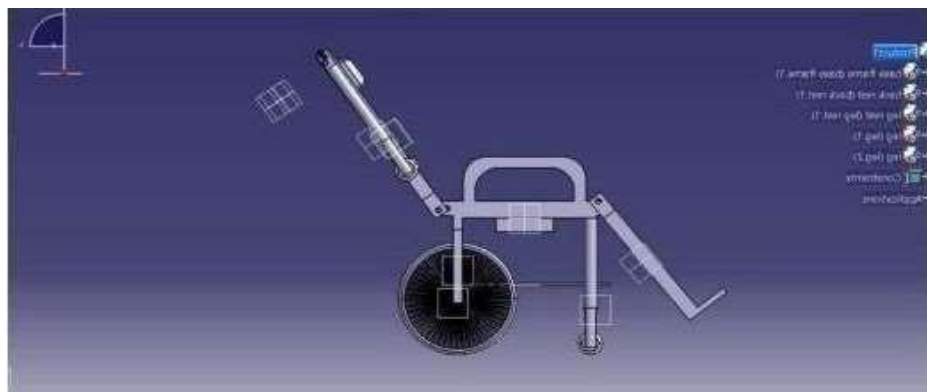
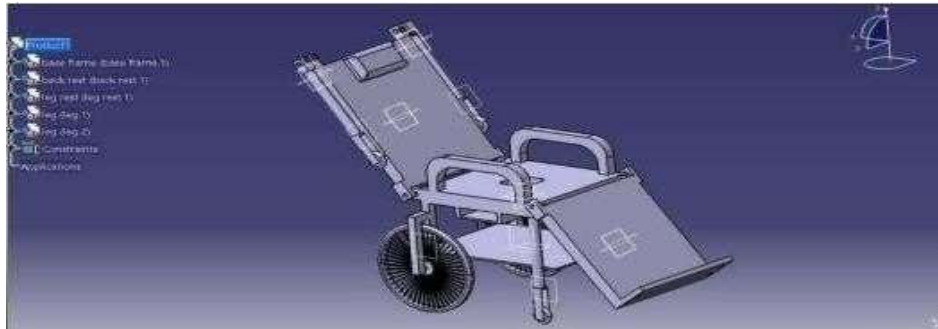
Proposed Work

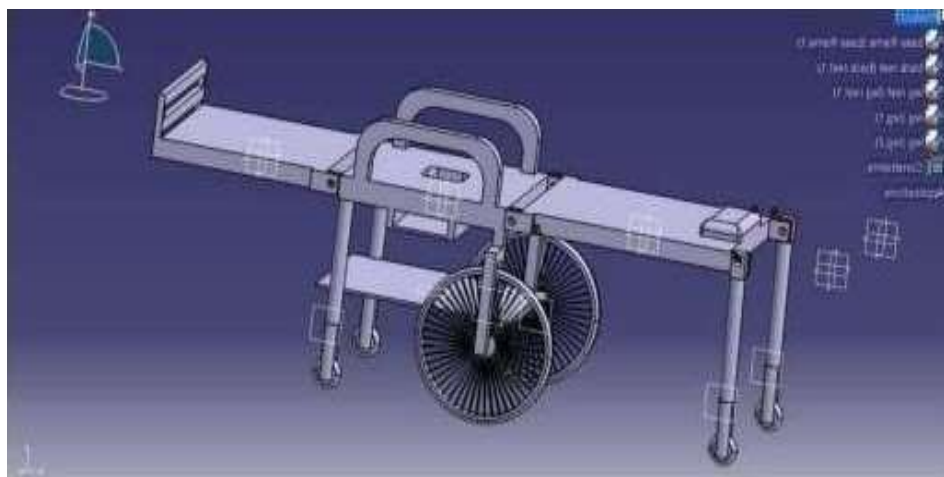
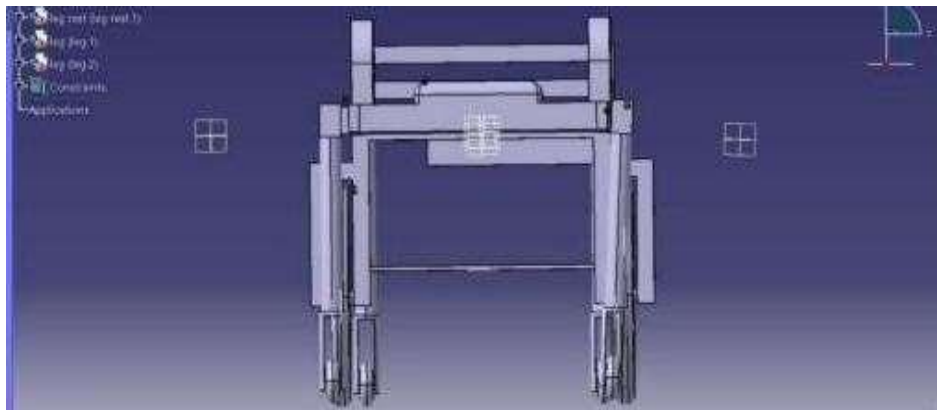
Phase 1:

1. Concept development and literature review is done.
2. Study of Automatic Wheel Chair Cum Stretcher/ Bed is done.
3. Learning modelling and analysis software is done.
4. Selection of Wheel Chairis done.
5. Design of Automatic Wheelchair cum Stretcher/ Bed is Done.
6. 2D and 3D model of Wheelchair cum Stretcher/ Bed is done.



IV. MODELING AND ANALYSIS





Facilities Required & Available :

1. Welding shop
2. Machine shop
3. Project lab
4. Library

V. RESULT AND DISCUSSION

As per our perception and in premise of the outcomes this paper portrays the plan of a savvy, mechanized, voice controlled wheelchair utilizing inserted framework. Proposed plan upholds voice enactment framework for genuinely debilitated people consolidating manual activity. A Programmed wheelchair makes it simpler for individuals who need a wheelchair however can likewise walk brief distances and gives them more energy to walk when they need to. It can give fundamentally greater availability and adaptability outside. It permit clients to encounter a level of freedom that essentially was absurd in years gone by. Programmed wheelchairs license clients to experience a degree of independence that just was past the domain of creative mind in years cruised by.

VI. CONCLUSION

Weight save reserves are tremendous going from 25-45% of the substantialness of more essential relentless quality, there are less examinations and essential fixes. Composite sheets don't support hurt as successfully as small gage sheet metals. Achieving smooth smoothed out profiles for drag decrease is clearer. Complex twofold shape abandons a smooth surface consummation can be made in one gathering movement. Composites structure offer improved torsional immovability. The general part count and collecting and get together costs are thusly diminished. Composites are correspondingly consistent for instance they have low warm conductivity and low coefficient of warm expansion. Close flexibilities can achieve without machine.



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