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CERTIFICATE

Certified that the project titled **SYNTHESIS AND SIMULATION OF TROLLEY FOR PATIENT HANDLING** is a bonafide work done under our guidance and is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the partial fulfillment of the requirement for the award of Post Graduation degree, **Master of Technology (M.Tech.)** in **Mechanical Engineering Design (MED)**

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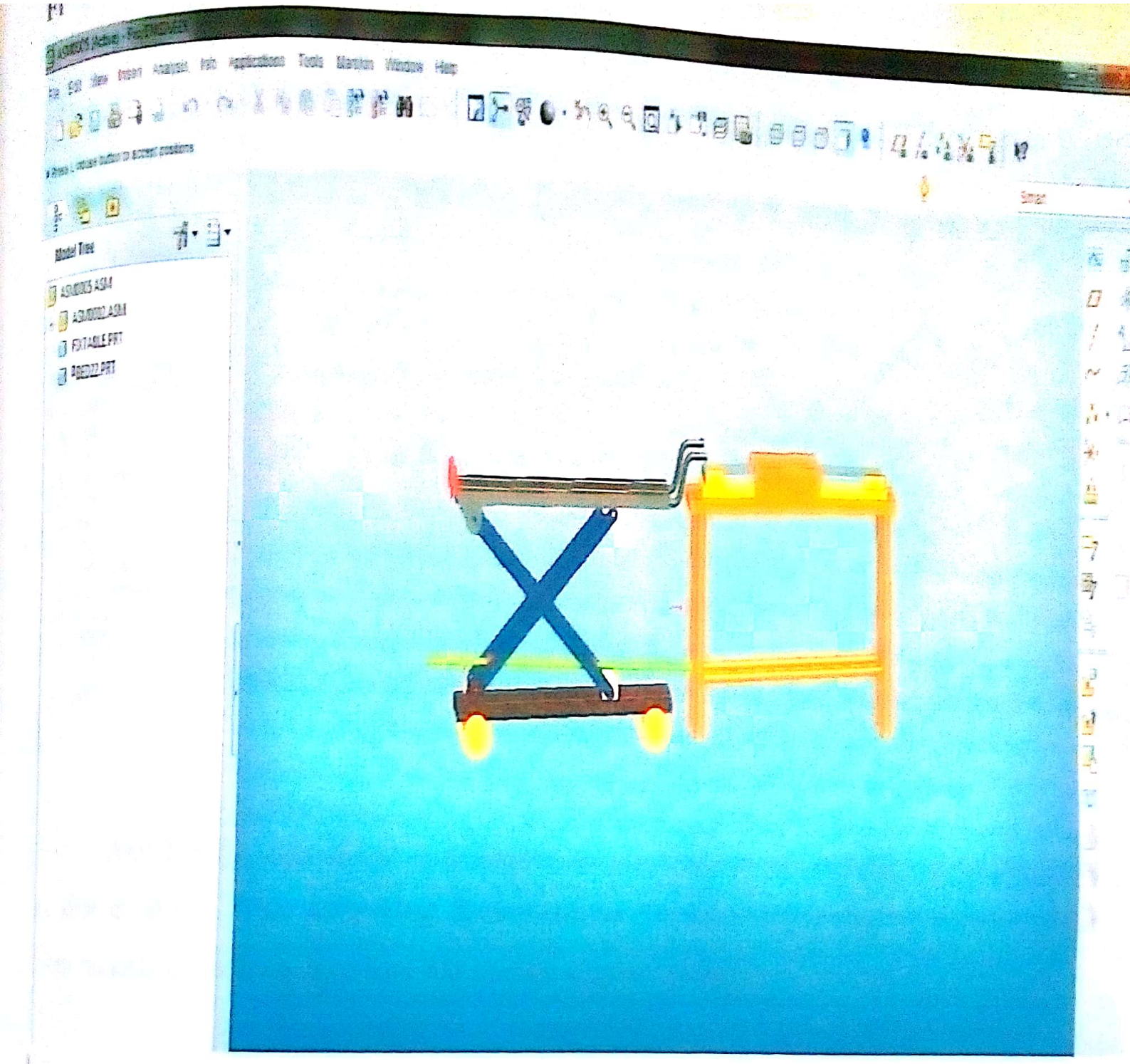
ABSTRACT

Owing to the demand for better living quality of immobilized patients, and working condition of caregiver, the functions and the convenience of hospital bed should be improved accordingly. Transferring of immobilized patients is usually the work of nursing staff. Transfer of patients from one bed to another or from bed to wheelchair or from bed to stretcher is a labour intensive work. It usually needs more than one nurse to do this job, which is very strenuous for nurses and dangerous for patient, if inappropriate operational procedure is used.

The present methods of patient handling are facilitated by trolley or trolley cum stretcher. The modern patient handling trolleys are provided with arrangement to push them into ambulance on a slant surface. Still no mechanization is available in present patient handling system to prevent the manual transfer of patient from hospital bed to trolley, trolley to CT scan or other facility centre and from trolley to hospital bed.

The present research work is an attempt to design a trolley with adjustable height and provision to accommodate an aluminium slider (in three parts) which also forms the top part of hospital bed. While transferring the patient from hospital bed to trolley, the height of trolley is adjusted exactly to the height of sliding top of hospital bed and the aluminium slider with mattress is transferred/ pushed to trolley channel housing. In the same manner the slide on the trolley is transferred back to hospital bed.



CONCLUSION & FURTHER SUGGESTED WORK

8.1 Advantages of Trolley cum Stretcher

It offers following advantages in comparison to present day stretcher and wheelchairs:

1) This project completely eliminates the manual patient handling.
2) It minimizes the requirement of Nursing Staff for Patient handling.
3) It will certainly reduce stresses on nursing staff and consequently make them more efficient and there are least chances of get them injured due to patient handling.
4) The patient who is immovable due to some illness or injury will be transferred to trolley cum stretcher with least effort.
5) The whole process of raising the height of Trolley cum stretcher and lateral transfer of Hospital bed to trolley is simulated successfully on Pro-E software.

8.2 Limitations of Trolley cum Stretcher

This project offers following limitations:

1) The cost of modification of hospital bed will be also high as Hospital's owner has to replace all the conventional hospital bed with new one.
2) Extra care has to take while moving the patient on Trolley cum stretcher.
3) This trolley cum stretcher will be useful for transportation on same floor in the absence of lifts.

8.3 Scope For Future Work

1) In future the manual lifting of trolley cum stretcher can be replaced by electric motor arrangement or hydraulic pump arrangement.
2) By using Artificial Intelligence the whole process of raising height of Trolley cum stretcher and lateral transfer of hospital bed can be made fully automatic.