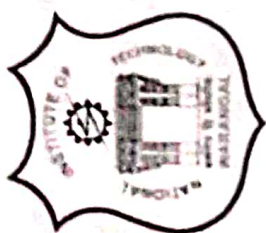
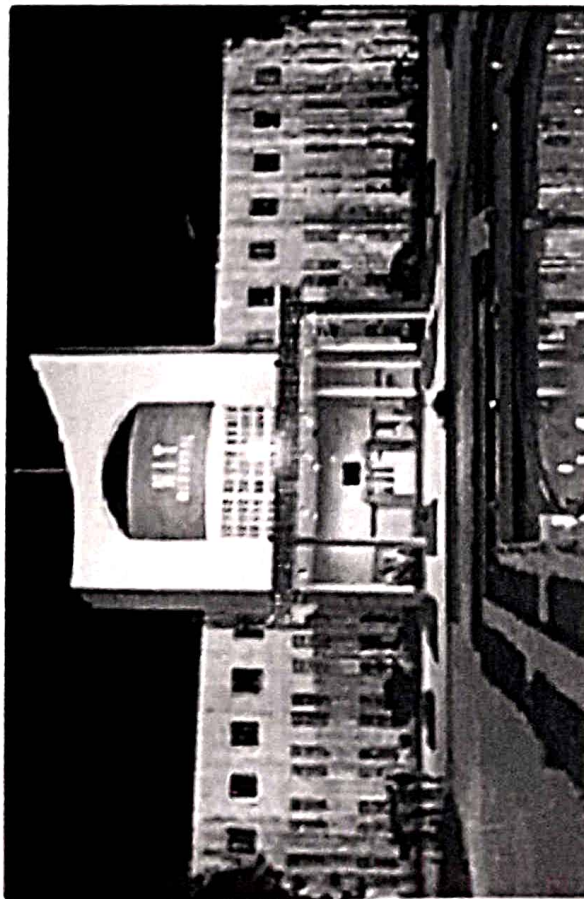




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**1st International Conference on
Mechanical Engineering : Researches and Evolutionary
Challenges
(Hybrid Mode Conference)
(ICMech-REC-2023)**



June 23-25, 2023

Organised by

Department of Mechanical Engineering

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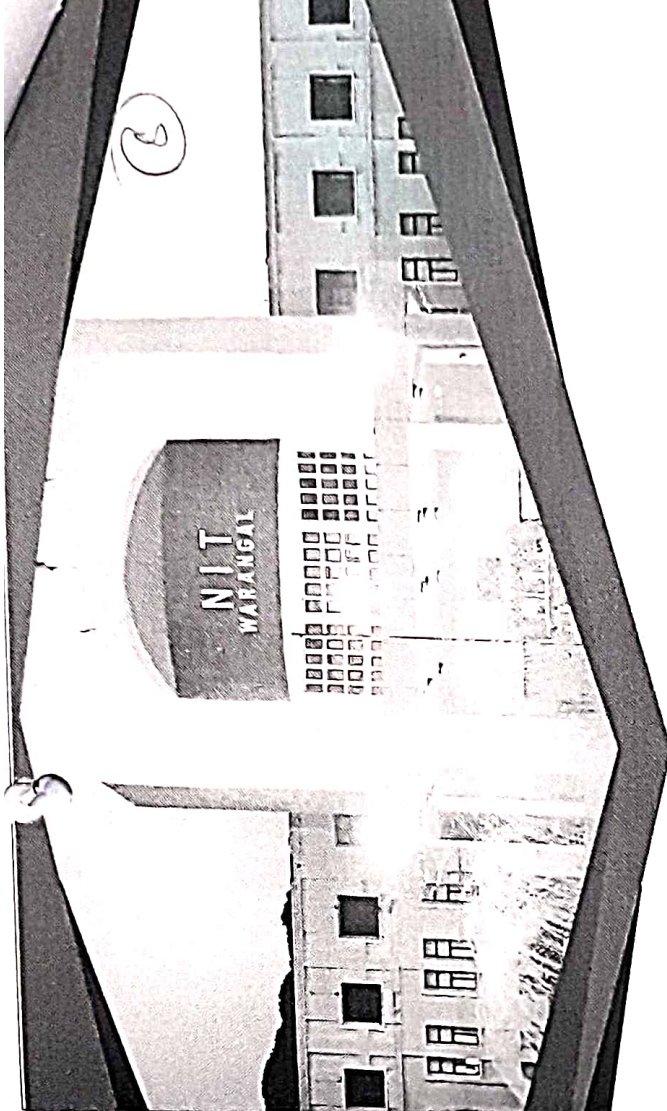
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Design and Development of Wheelchair for Paraplegic and Quadriplegic Patients

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Abstract: The problem face by paraplegic & quadriplegic patients are independent mobility. The purpose of this project is to design and develop an automated wheelchair to aid people with higher degree of impairment, such as quadriplegics and paraplegics patients i.e. persons that due to some accident, age or disease illness cannot move some of their body parts, except the upper body parts or only head motion. Traditional Wheelchairs though have certain limitations with the flexibility, heavy weight of the chair and limited functions and they are not suitable for this person's requirements.

There are many people who are unable to perform their daily basic tasks without assistance from others so we want to help them with the use of technology attached in their wheelchairs and improving their quality of life and increase independence from other and providing access to move freely nearby. In this project we have used a sensor and module 1) Accelerometer sensor (ADXL 345) which sense the motion of the head and 2) HC05 Bluetooth module which is connected to other electronic device from their it controls wheelchair they send signal to get process in microcontroller.

Depending upon device command or motion of sensor the wheelchair is given possible movement with the help of motors. We had read some research papers and articles online that motivated us to select this project and how important need is for research and development in wheelchair field. In the project we used mathematical equations and formulas for getting a value for selecting components of a wheelchair such as a motor, battery, relay, motor driver by considering a normal person's weight and assembling them together.

Keywords: Wheelchair, Quadriplegic, Paraplegic, ADXL345.

I. INTRODUCTION

The primary goal of this paper is to design and develop wheelchairs for paraplegic & quadriplegic patients and also for those who are elderly, paralyzed, handicapped to drive wheelchair. Census conducted in 2001 has revealed that around 21 million people from India i.e. 2.1% of total country's population are suffering from disability of some kind or another which will be around 1.7% of the current population of India. Disabilities can be from birth or by some accident which occur that can cause permanent or temporary disability to a person's body and health. In these cases, for


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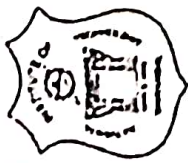
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This is to certify that Mukund Kavekar, Vinay Kumar Yadav, Sohail Shaikh and Saikrishna: warrior has presented a paper entitled as "Design And Development Of Wheelchair For Paraplegic And Quadriplegic Patients" in 1st International Conference on Mechanical Engineering: Researches and Evolutionary Challenges -2023 conducted by National Institute of Technology Warangal, Telangana from 23 -25 June, 2023.

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