



Jyothi Engineering College

NAAC Accredited College with NIR Accredited Programmes*

Approved by AICTE & affiliated to APJ Abdul Kalam Technological University

A CENTRE OF EXCELLENCE IN SCIENCE & TECHNOLOGY BY THE CATHOLIC ARCHDIOCESE OF TRICHUR

JYOTHI HILLS, VETIKATTIRI P.O. CHERUTHURUTHY, THRISSUR, PIN-679531 PH : +91- 4884-259000, 274423 FAX : 04884-274777



NBA accredited B.Tech Programmes in Computer Science & Engineering, Electronics & Communication Engineering, Electrical & Electronics Engineering and Mechanical Engineering valid for the academic years 2016-2022. NBA accredited B.Tech Programme in Civil Engineering valid for the academic years 2019-2022.

7.1.7 Disabled Friendly Environment – Other Relevant Documents

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Sl. No.	Student Project – Disabled Friendly Wheel Chair
1	Head Controlled Wheelchair with patient Monitoring- Project Summary

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HEAD CONTROLLED WHEELCHAIR WITH PATIENT MONITORING

<https://www.facebook.com/jecc.ac.in/videos/4040566356014750/>

The challenging problem faced by the paralyzed people is their independent mobility. They need an external help to perform their daily activities. This may even cause emotional stress to the patient. The patient will not be able to do his day to day activity also. Our project addresses the problems caused due to mobility impairments. We intend to make move the patient independently from one place to another with the help of wheelchair by tilt movement of their head. A Patient monitoring system consisting of blood pressure and temperature which helps to know the present situation of the patient and monitors his body parameters. If any changes are seen, send a report immediately to the specified doctor.

In our project, the accelerometer reading obtained from the tilt of the patients head controls the motor driven wheelchair through relays. The accelerometer sensor is placed on a hat which is to be worn by the patient. It is connected to the microcontroller. Whenever the patient wants to move, he has to tilt his head in the appropriate direction. Based on the patient's head movement, the microcontroller sends signal to the four motors that are attached to the four wheels of the wheelchair. To turn at any point, the person has to move his head in specific direction. In this case, the controller provides zero voltage to two motors and full voltage to another motors. Due to this, only one wheel moves while the other does not; thereby enabling the person to turn either left or right according to his/her need. The patient monitoring system which consists of pressure and temperature sensor which will help in the critical situation. The pressure and temperature of patient is monitored and send to cloud server which will help to know the present condition of patient. An application is provided so that this would help people and doctor to know their body variations easily. There is a switch to power ON/OFF the circuit so that it could be used only when needed. Ultrasonic sensors have been used for implementing obstacle avoidance and anti-collision mechanism.

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The head controlled wheelchair will help the people to perform their daily activities without external help. The wheelchair is cost effective solution to the society's need for modern smart technology. This wheelchair is fully capable of carrying the load of 70-80kg, and moving in accordance to the head gesture given by the person who is using the wheelchair. There are four mode of wheelchair control namely voice control, eye-ball control, joystick control and gesture control. But head control is more preferable because of feasibility may help patient more comfortable. Basically, the wheelchair will provide basic needs for disabled people such as moving around without being pushed around by users also user can control and monitor health status of patient.

Awards

- First Prize in All Kerala Project Competition organized by IEEE-IA/IE/PELS Jt. Chapter, Kerala Section

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