Voice Controlled Wheel Chair

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Abstract—The main objective of Voice Controlled Wheel Chair System project is recommended to control a Wheel Chair by using speech recognition module. The system is designed to control a wheel chair using the voice of a person. The objective of this project is to facilitate the movement of people who are disable or handicapped and elderly people who are not able to move well. The goal of this system will allow certain people to live a life with less dependence on others for their movement as a daily need. Speech recognition technology is a key technology which will provide a new way of human interaction with machine or tools. Therefore, the problems that they face can be solved by using speech recognition technology for the movement of wheel chair.This can be realized and optimized with use the smart phone device as an intermediary or interface. In this project interfaces had been designed therefore to develop a program for recognize speech also controls the movement of chair and an application which can handle or manage the graphical commands. This project uses Arduino kit Microcontroller circuit and DC motors to create the moment of wheel chair and ultrasonic Sensors to detect the hurdles in between wheelchair and the way of direction.

***Index Terms*— Arduino, GSM module, DC motor, Handicapped, Ultrasonic Sensor.**

I. INTRODUCTION

In this project we are using Android Application and Voice Recognition System. But many of individuals with disabilities who need wheelchairs are satisfied with it, few members of the disabled community find it is difficult or impossible for operating a standard power wheelchair. This project is included in assistive technology. For handicapped and depended disable it is more independent, productive and enjoyable living.To perform functions a handicapped person with locomotive disabilities needs a wheelchair that require him or her to move around. He/She can do so manually by pushing the wheelchair with his/her hands. How ever many of us have weak upper limbs or find the manual mode of operating too tiring. Therefore it is desirable to provide them with a motorized wheelchair which is controlled by moving a voice commands. Since motorized wheelchair is important that it be able to avoid obstacles automatically in real time, it can move at a fair speed. Cost of this motorized wheelchair is affordable for many handicapped people as possible, as well as for organizations that support it. With these requirements in mind we propose an automated wheelchair with real-time Herald avoidance capability. The power wheelchair control interfaces currently still not enough to provide mobility for substantial number of person with disabilities. Through research and design wise, the wheelchair to control development along safe and effective use of the provision independence and self use mobility. This project will provide disability weight innovative solutions to handle the wheel chairs to use voice interface. This project describes a wheelchair which can be controlled only by using the android application and user's voice also. The main aim of this project is to facilitate the movement of the disabled people and elderly people who cannot move properly so with this we can enable them to lead better lives without any problem. Speech recognition is a key technology which can provide human interaction with machines for controlling a wheelchair. This project includes two parts which is software and hardware. It is realized that for input of human voice we are using Android phone as an intermediary. In this project, Ardiuno kit (Atmega 328) is used as controller to control the movement of wheelchair based on the human voice as an input.

II. EXPERIMENTAL METHODOLOGY

A.Methodology

Voice based Wheel Chair for Physically Challenged proposed a system which aids an assistance for physically handicapped ones those who are not able to move by themselves. It uses speech recognition by interfacing speech recognition kit(HM2007) with microcontroller and wheelchair. The system provides a Mic for the user to give commands HM2007 registers the commands and fed them to microcontroller. Motor driver drives the wheel chair according to the commands from microcontroller.

Wheel Chair for Physically Disabled People with Voice & Eye control introduce a concept useful for people with loco-motor disability.Here wheel chair is controlled by eye movement and voice commands.Eye movement is detected by using a head mounted camera.Corresponding output signals fed to motor which control wheel chair movement.Voice assistance is also used by this system.By giving commands the movement can be controlled.Voice Controlled Wheel chair system put forward a wheel chair system controlled by voice of the person.The goal of this system is to assist the physically challenged people.It uses speech recognition technology by which voice can be realized and organized with smart phone device as an intermediate interface. It also uses an obstacle sensor to detect the hurdles in between wheel chair in the way of its direction. A DC motor creates the movement of wheel chair.Voice Controlled Wheel Chair for Physically Disabled Person design a system that operates on users voice commands.This voice controlled wheel chair helps them to drives the wheel chair without any ones help. This system can be controlled by users simple voice commands. According to the direction specified in commands, wheel chair moves. Speech recognition is done here by using a speech recognition module.

B. Analysis

Researches and advancements in the field of wheelchair control system are still going on. Many people with disabilities do not have the skill essential to control a joystick on an electrical wheelchair. This can be a great drawback for the user who is permanently unable to move any of the arms or legs. They can use their wheelchair easier only using voice commands. In the proposed project, the main idea of using voice controlled technology for controlling the motion of the wheelchair is to prove that it can be an exclusive solution for severely disabled. The purpose of the project is to implement a speech recognition system to recognize the input words from the user. The Block Diagram consists of Bluetooth module,12v Power Supply Battery, Two DC Motors, One L293D Motor Driver,Mems sensor, GSM module, ultrasonic sensor, red led, green, led, buzzer.

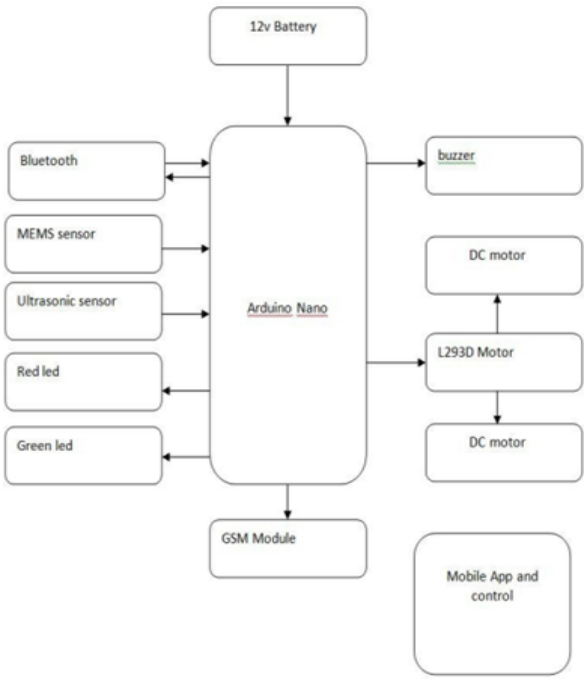

Figure:1 Block Diagram

IV. RESULTS AND DISCUSSION

A Wi-Fi module is connected to the Arduino which can be used to control the wheelchair using smart phone. The wheelchair also consists of LCD screen which displays the command given to the system. An IR sensor is also included which detects any obstacles on the path. There are also vibrators connected to the end of the wheelchair where in it provides the vibration therapy.

The wheelchair is controlled by the commands from the user as well as by the using a smartphone which is connected through the Wi-Fi module. This helps the disabled or the elderly people to move independently and thus eliminating the enslavement. Alerts are given if the person falls down from the wheelchair and stops when an obstacle is detected. The wheelchair also provides vibration therapy for faster recovery of the

patient.The efficiency of voice command -based wheelchair by neural based algorithm can be improved

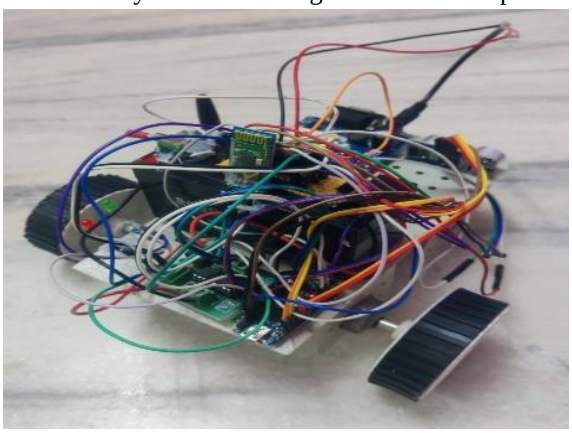

Figure 2: Backward View

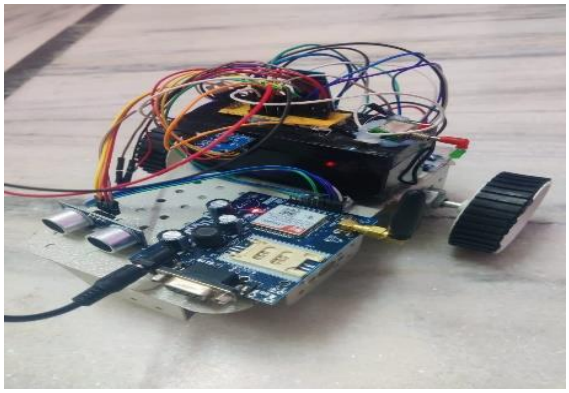

Figure 3: Forward View

V. CONCLUSION

i. The design and implementation of a Voice controlled wheel chair for disabled people using Arduino and voice recognition module for controlling the motion of a wheel chair is designed. The direction of the wheel chair now can be selected using the specified voice commands.

ii. The design not only reduce the manufacture cost compared with present market but also will give great competitive with other types of electrical wheelchair. The only thing needed to ride the wheelchair is synthetic voice commands of the person.

iii. A system that can directly enhanced the lifestyle of a physically disabled person in the community is implemented. This project has many advantages like safety, comfort, energy saving, full automation etc.

iv. The technology can also enhanced safely for users who use ordinary joystick-controlled wheelchair, by preventing collision with walls, fixed objects, furniture are overcome by this “voice controlled wheelchair”.

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