
VOICE OPERATED WHEEL CHAIR

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ABSTRACT

This project is related to controlling a wheel chair by means of human voice. The objective of this project is to facilitate the movement of people who are disabled or handicapped. Speech recognition technology is used to move the wheel chair. The result of this project is show that this can be used for future research work and public interest.

Keywords: Bluetooth Receiver, AT Mega 328, Cell Phone, Motor, Power Supply.

I. INTRODUCTION

This project aims to style integrate program to interface and test a totally motorized, voice-operated wheelchair. A regular standard wheelchair wasn't used instead a prototype was made to meet this project's goals. In this project, the procedure of the Mechatronic systems design was followed to assure the quality of the final product i.e; the Voice controlled wheelchair. The project took the following of the subsequent parts: Hardware, software, interface, and testing. This project is said to controlling a wheelchair by means of the human voice. The target of this project is to facilitate the movement of people who are disabled or handicapped. We used Speech recognition technology which has been employed to maneuver the wheelchair. The results of this project show that this will be used for future research work and public interest.

The main objective is to style a system that gives the answer for the physically handicapped (challenged) people those who that can't move by themselves, they can use speech commands by interfacing the Speech Recognition with a microcontroller and wheelchair. The voice commands are given to the Bluetooth module HC 05 kit with the help of an android phone and thus the wheelchair moves according to the given directions. The wheelchair's movement is being controlled by the motors and the motor drivers are being connected to the wheels of the chair. 2 The interfacing between speech recognition kit and motors is completed by employing a microcontroller. The interfacing between speech recognition kit and motors is completed by employing a microcontroller. Here during this project, the microcontroller used is ATMEGA 328 The idea was taken during this paper to reduce the human efforts in driving a wheelchair. It's an incontrovertible fact that humans are born imperfections. But disabilities have never stopped a person from achieving greatness. Furthermore, many devices/instruments are invented to assist those that are mentally or physically challenged. "Wheelchair" is supposedly the simplest example to support the above-mentioned inventions.

II. METHODOLOGY

The purpose of this project is to implement a smart wheelchair which moves independently as per the users input. The system is developed with the voice, phone gesture and touch as inputs via the android smart phone. The wheelchair is fully independent and the user does not need any external support to move the wheelchair. The wheelchair is implemented with incorporating the technologies of NodeMCU and motors. The NodeMCU is connected with the motors for the movement of wheelchair. Wi-Fi module is incorporated in the wheel chair architecture and the android phone will be connected to the Wi-Fi. The inputs used are:

VOICE When voice is selected as an input, the user can give the directions as voice commands for moving the wheelchair to the desired locations. The voice is taken from the android smart phone to control the operations of DC motor.

Development Tools:

Hardware:

- Node MCU
- Motor Driver Module (L293D)
- Motors - 2
- Caster Wheel
- Wheels - 2
- Ultrasonic sensors
- Power adapters or battery

Software: ▪ Android App ▪ Arduino IDE

III. MODELING AND ANALYSIS

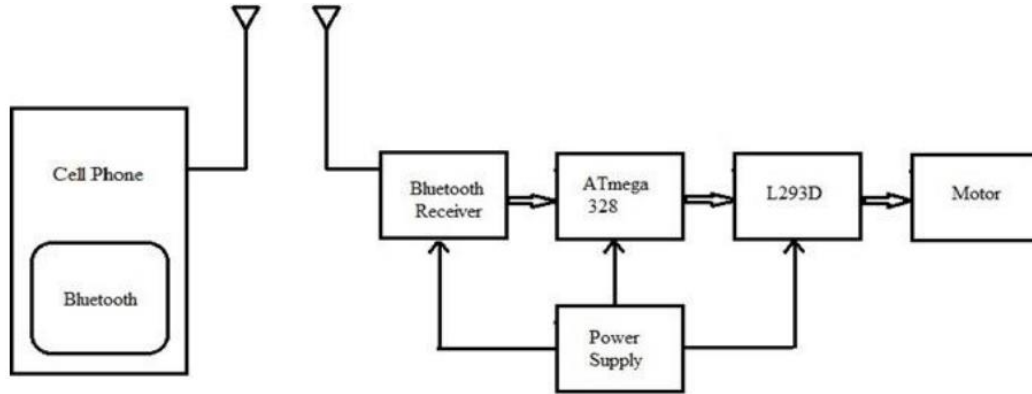


Fig 1

1. When the app is started at that point a request is created if the Bluetooth is not switched on.
2. A combined virtual switch is near which is utilized to combine the Android mobile phone with the device Bluetooth HC-05 for wireless transmission of data.
3. When the Bluetooth has turned on the request considers the information when the user affects the virtual button.
4. If the requirement is forward and only if the ultrasonic sensor does not sense any object within 30 cm in front of it then all the dc motors are provided with 5V and submitted in forwarding directions for linear progression.
5. If the condition is opposite then all the dc motors are provided with 5V and moved in reversed tracks for linear movement.
6. If the condition is to switch left then the left dc motors are suspended and the right dc motors are provided with 5V and the wheelchair progress in left direction.
7. If the condition is to turn right then the right dc motors are suspended and the left dc motors are provided with 5V and the wheelchair progress in right direction.
8. If STOP over the voice command is said then all the dc motors are stopped.

Circuit Diagram:

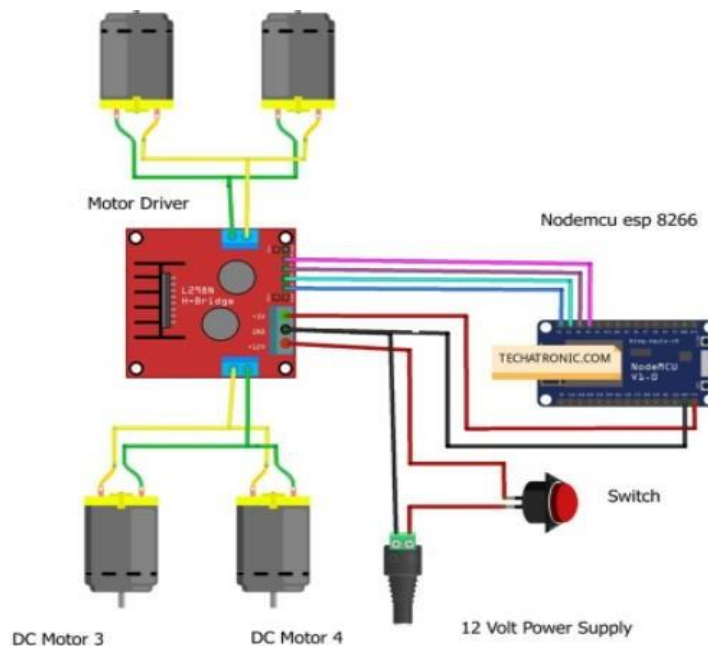


Fig 2 - Circuit Diagram

Flow Chart

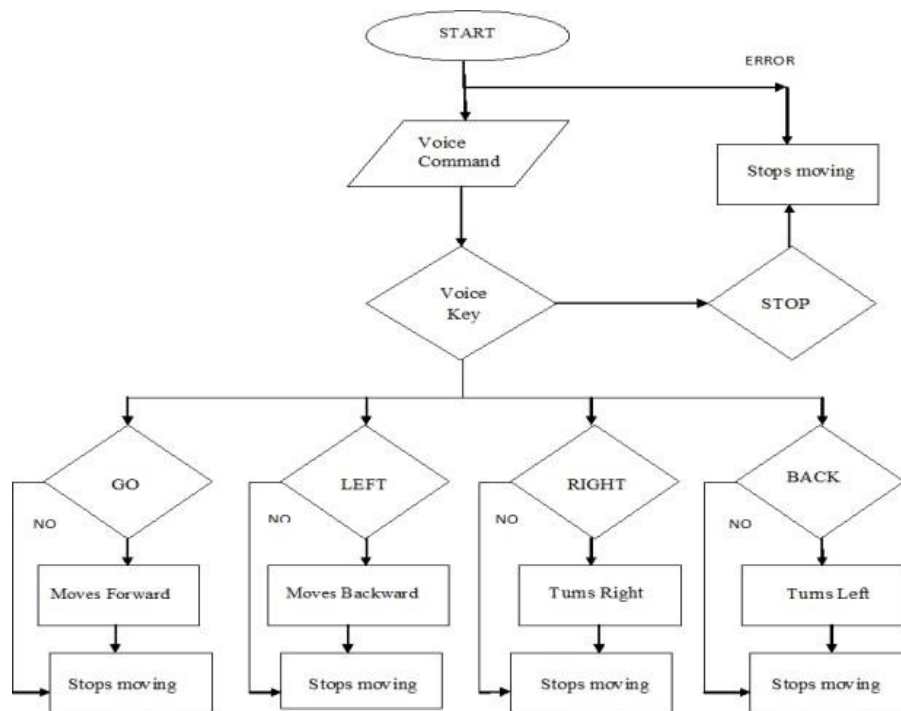


Fig 3- Flow Chart

IV. RESULTS AND DISCUSSION

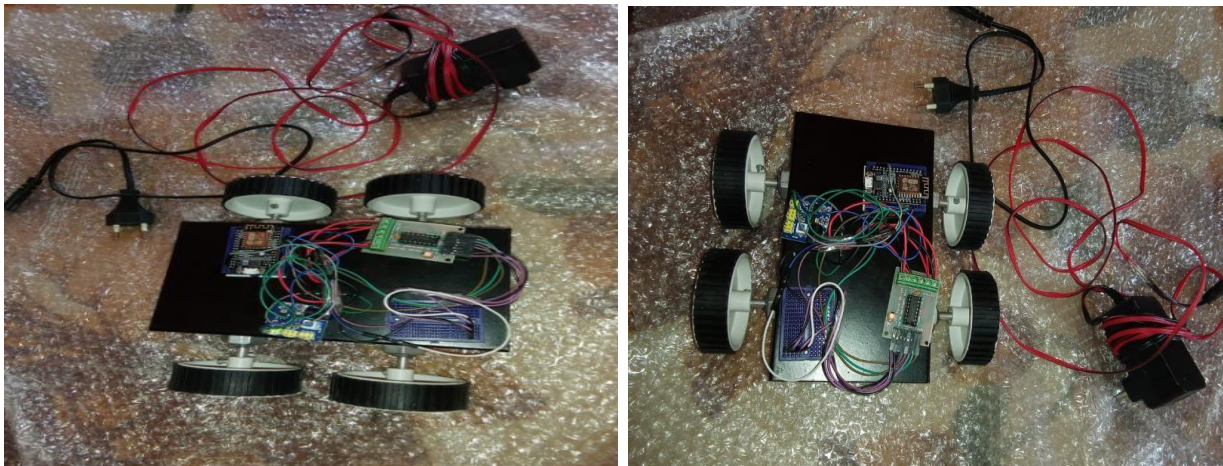


Fig 4- Result

V. FUTURE SCOPE

- 1) In addition, voice-controlled robots have the potential to be used in the manufacturing industry for tasks such as inventory management, assembly line operations, and quality control.
- 2) They can also be used in the service industry for tasks such as customer service.

VI. CONCLUSION

The conclusion of the voice-controlled robot project is that it is a successful implementation of voice recognition technology in robotics. The project has demonstrated that it is possible to create a robot that can be controlled by voice commands, allowing for a more intuitive and natural user experience. The robot is capable of recognizing a wide range of commands, including movement, task execution, and interaction with the environment.

VII. REFERENCES

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