Voice controlled Wheel chair

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Submission date: 16-May-2024 02:54PM (UTC+0530)
Submission ID: 2380906939
File name: voice_controlled_wheelchair.docx (671.76K)
Word count: 1329
Character count: 7658

Voice control wheelchair

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Abstract: This study presents a voice control wheelchair project for those with physical imbalances. In the project, the wheelchair's motion is supported by an Arduino NANO and a Bluetooth module. Four functioning motors are provided in this wheelchair. The Bluetooth module to regulate a wheelchair may be linked to your phone or any other device that's within ten meters of the module. such that it fits into a wheelchair. Individuals who have impairments impacting their hands, feet, or lower body are unable to do everyday things. People who have disabilities often struggle to go out everyday activities. People having hand and foot impairments mainly depend on them for moving around. We are living in a more technologically sophisticated world now. But vacationing with a disability is tough. The objective of the initiative is to provide a wheelchair so that persons who are incapable to move about independently can do so with ease. A fresh kind of communicating with machines will be made possible by speech recognition technological innovations.

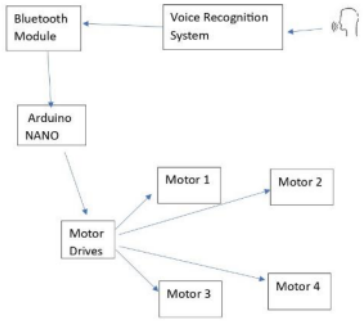
Keywords: Bluetooth Module, Google Voice Sensor, Motor Drives, Arduino NANO.

1.Intoduction

People having foot or hand ailments or impairments are the majority of adopters of this wheelchair. They have many kinds of wheelchairs that are utilized for frequently occurring problems which includes problems with the immune system or hospitalizations. The objective is to enable those with disabilities to live autonomously of others and flourish in this world. The wheelchair can travel in four directions: left, right, forward, and backward. The word "ok" indicates that the wheelchair ought to have stopped. the wheelchair travels at 15 km/h. We use the batter and use the charger to both recharge the battery and use the battery. This innovative technology is revolutionizing accessibility through allowing users to move autonomously and with ease using voice commands. A new era of comfort and freedom is here; bid adieu to conventional controls.

2.Proposed System

The speech recognition device We implement the "AMR_VOICE" Android app, that requires specific to a specific type of Bluetooth-enabled gadget. With the assistance of AMR_VOICE, we utilize Google Voice and establish a connection to the wheelchair. The Google speech Sensor picks incoming speech commands and sends information to the Bluetooth module, where we use just five commands altogether. Our wheelchair has an obstacle detector that measures the distance that exists between it and other obstructions. There is an on/off switch on the wheelchair.



Block Diagram of Voice Control wheelchair

3.Components

A. Bluetooth Module

B. Motor Drives

C. Arduino NANO

A. Bluetooth Module

Bluetooth modules communicate data instantaneously between electrical equipment as their fundamental function. Its signal is capable of traversing 10 meters to reach electronic devices using a 2.45GHz frequency spectrum. Additionally, a 4-6v power supply was required. It transfers data at a speed of one megabit per second. The Bluetooth Module is an essential component of the wheelchair in this project. Wireless Connectivity: The Bluetooth module enables it feasible for the wheelchair to communicate and function effortlessly with other devices like smartwatches, tablets, and smartphones. Remote Control: As an alternative to voice instructions, users can control the wheelchair remotely with a Bluetooth-enabled smartphone or tablet.

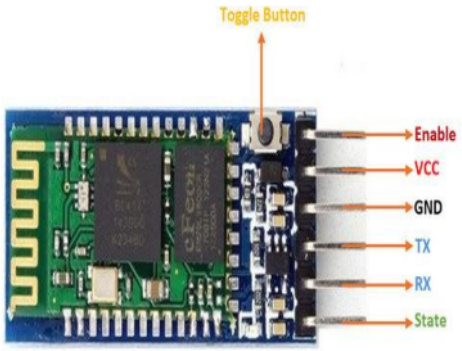
Features of Bluetooth Module:

1.Power supply (4 to 6) v

2. Consumption of current for operating is 30MA

3. Range is ten meters

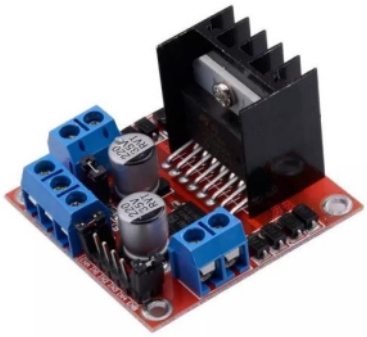
4. Works with serial communication (USART) and TTL compatible



Bluetooth Module HC-05

B. Motor Drives:

The forward and backward directions are offered by the motor drives. The motor drive's purpose is to supply the four motors with electrical and to draw electricity from the battery. the four motors' assistance in moving forward or backward. The basic purpose of motor drives is to transform electrical energy from a power line into a form that a motor can use. Electric motors' acceleration, direction, torque, and speed are all managed by motor drives, which are electrical devices. They are essential for precise control over motor functioning in a wide range of applications, from domestic appliances to industrial machinery.

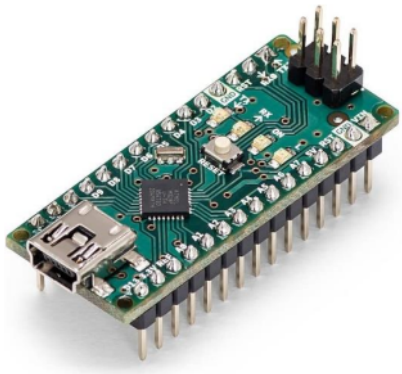


Motor Driver

C. Arduino NANO:

The hole wheelchair can be moved with the assist of an Arduino Nano. It sends motor control commands from the Bluetooth module. With 16 digital pins for an assortment of

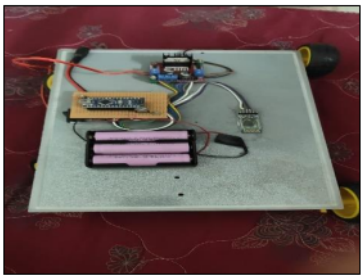
uses, the Arduino Nano is a microcontroller-based technology. It is useful for nearly all tasks, ranging from small-scale businesses to massive amounts industrial commitments. Prototyping and creating new applications are more applications for it. Although it shares numerous parallels with the Arduino Uno board, its smaller size has led to the displacement of the Arduino Uno with regard to of pin structure and capabilities. Smaller components are favoured when designing embedded systems, as is well known. The main objective of Arduino boards is for building electronic designs. With the use of wireless relationship, sensors, actuators, and Arduino boards, homeowners can effortlessly manage a variety of living space defining features. Energy management, automated security systems, and lighting and temperature control are just some of the applications that Arduino is employed in home automation systems.



Arduino NANO

Working of voice control wheelchair:

The microphone supplies the input, that is, the voice. The Arduino Nano is able to identify and send signals from voices with the aid of a Bluetooth module. Motor drives get instruction from Arduino NANO, which translates them into commands. They contain five instructions: left, right, alright, forward, and backward. With the aid of a Bluetooth module, the voice was sent to the Arduino, and motor drives will enable the motor to function in accordance with this command. The user's education is understood by the speech recognition module, which then sends the Arduino Microcontroller the appropriate coded data that has been stored in memory. The way it moves is controlled properly by the Arduino Microcontroller. For those with physical disabilities who can still use their hands, the wheelchair further encompasses a joystick attachment.



Conclusion:

A voice-controlled wheelchair project's conclusion typically involves a summary of the results, an examination of the difficulties and triumphs encountered throughout development, an evaluation of the system's overall effectiveness, and recommendations for future study or areas for improvement. It would also draw attention to the possible advantages of this technology for those who have mobility issues and how it could enhance accessibility and independence. When it pertains to freedom and accessibility, controlled by voice wheelchairs are a great option for people with limited mobility. Voice instructions make it possible for wheelchair users to more quickly and easily without using manual controls. This technology allows people to walk around with greater freedom and autonomy, which enhances their quality of life. To further improve safety and use, voice-controlled wheelchairs frequently include cutting-edge capabilities like obstacle recognition and avoidance. In summary, voice-activated wheelchairs are a promising development in assistive technology that could significantly improve the quality of life for individuals who struggle with mobility. Voice-controlled wheelchairs allow users with physical limitations to via voice instructions, therefore increasing their freedom and mobility. This technology offers a practical and easy-to-use control The system thereby improving accessibility and elevates users' quality of life.

Future Scope:

Future advancement is possible by we can control long distance and eye disability Person will use the wheelchair.

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