

Arduino Based Voice Controlled System

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ABSTRACT

Voice controlled robot (VSR) is mobile robot whose motion can be controlled by the users by giving specific voice commands. The speech is received by a microphone and processed by the voice module using voice command. Proposed design supports voice activation system for physically handicapped person incorporating manual operation.

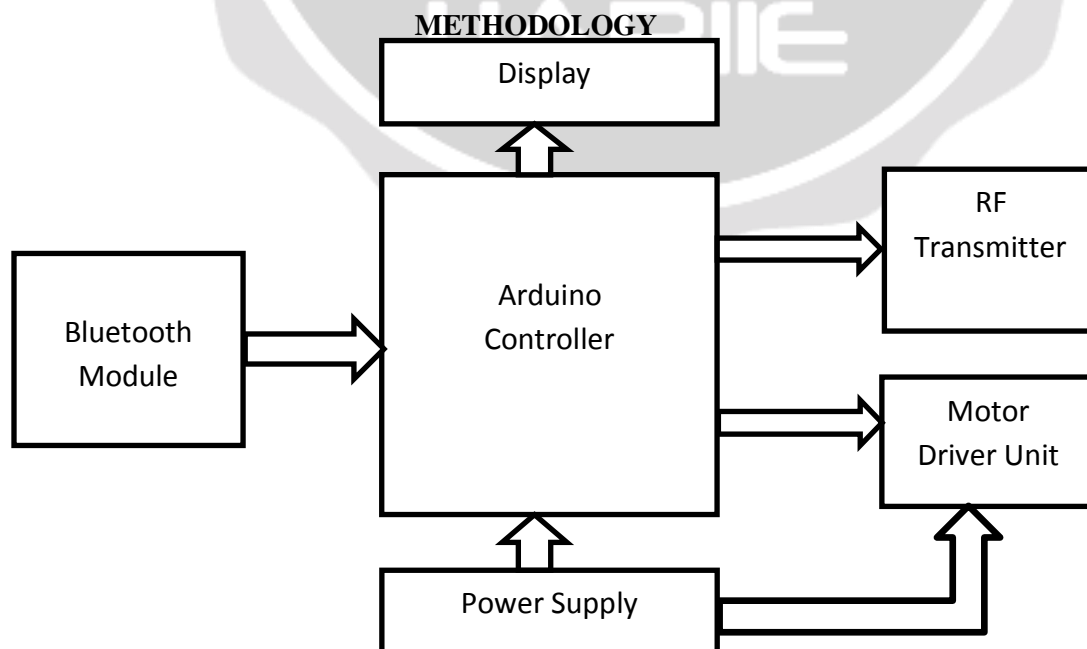
Simultaneously we can control various home appliances. This project is work as home automation system. The voice command is given by using mobile to the Bluetooth which has certain features like controlling the speed of the motor, sensing and sharing the information with phone about the direction and distance from the nearest obstacle.

Keywords: Arduino Uno, Wheelchair, Bluetooth Module

INTRODUCTION

When we control the voice, the first term to be considered in speech recognition is a technology where the system understands the words given through speech. The main aim of this of project is to control wheel chair through human voice. This project is mainly used for physically challenged people who are dependent on wheelchair and especially those persons who control use their hand to drag their wheel chair because of some disability.

In this system we have used voice recognition module to recognize the voice of the user for controlling the direction of the wheel chair. The advancement of used in this project is to control home appliances by using voice command to this project can also work as home automation system. For home automation the transmitter circuit is present at wheel chair and the receiving circuit is present at switch board. The command was set in Arduino board.



Arduino controller: Arduino is a simple integrated development environment (IDE) which runs on a pc and allows user to write programs for Arduino in c or c++ language. The entire programs are installed in Arduino controller. The Arduino can control both functions i.e. wheelchair control and automation control. Arduino is an open source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs – lights on a sensor, a finger on a button –and turn into an output-activating a motor, turning on an LED, publishing something online. In this project the Arduino board used as voice recognition module. It detects and processes the voice commands, all the voice commands are save in Arduino controller. Arduino controller compares and matches voice commands if the commands are match then perform the task.

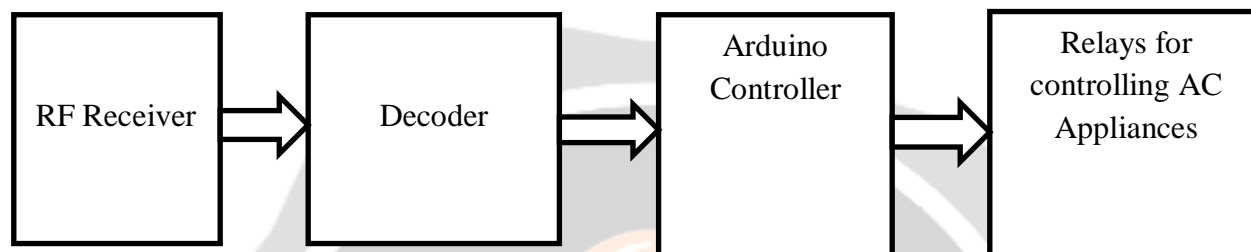
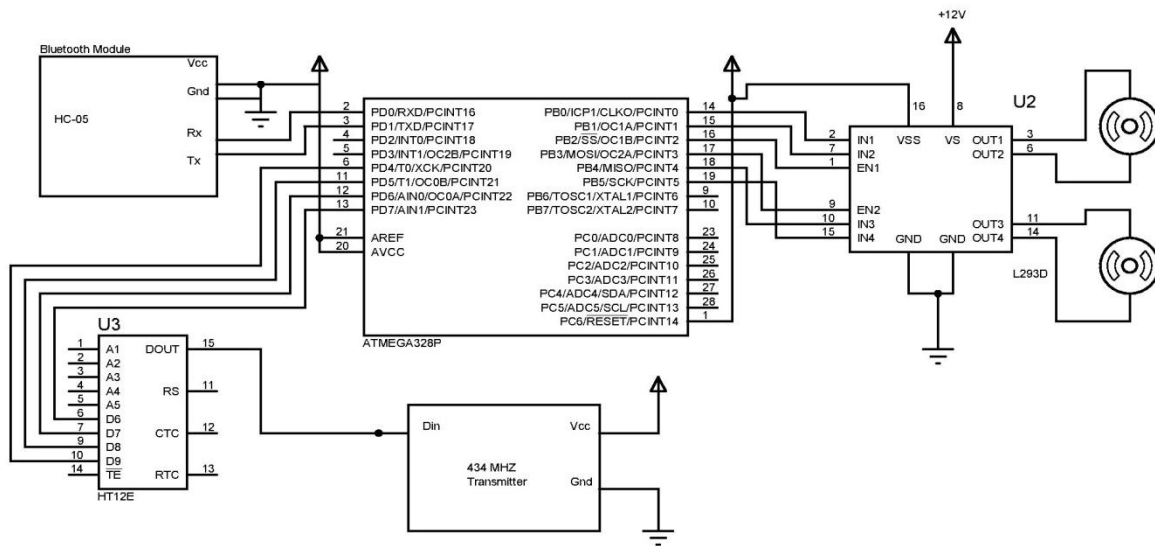


Fig. Block Diagram of Receiver

Working: In this arduino base voice control system we use 12V DC power supply for DC motors and 5V DC supply for circuit by using 5V 7805 IC. The 5V supply giving to the Bluetooth module, arduino board, HT12E encoder IC, IR sensor, motor Driver to make enable the system. First we connect the android board to Bluetooth module with predefine password. Mobile receives the voice command and using goggle API convert voice command into string command. After connection Bluetooth module gives data through Tx and Rx pin and then receives the arduino board. Arduino board process received string from the Bluetooth module by using ATmega328 microcontroller. The various command set in controller is forward, Backward, Left, Right, Stop, Fan on, fan off, AC on, AC off, Light on, Light off, TV on, TV off. Using this command output is generated, this output signal is giving to the motor driver circuit and RF transmitter circuit. In motor driver circuit receives the data from arduino board and according to the instruction we can switch the relays connected in motor driver circuit. The RF transmitter receives command form HT12E encoder IC this IC encode the data and give to transmitter module. The data transmits form the air by using antenna. In the receiver side we use ASK modulated RF receiver in this 434MHz frequency are used to receive the data and then decode the data by using HT12D IC. The receiver circuit works on 5V power supply. There are four Relays operates on decoder HT12D IC. Relay is used as switch operates only by using electronic switch.

CIRCUIT DIAGRAM



HARDWARE IMPLIMENTATION



APPLICATIONS

- **For Paralyzed people** :It can use for paralyzed people to move from one place to other place. It can use for those people who handicapped their hand, eye etc.
- **For Home Automation** :It can be used in-home automation to control Fans, light other home appliances.
- **For military** :It is used in army when the soldiers can't enter into some restricted area.
- **For Industry** : It can be used in industry to move the object from one place to another.

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CONCLUSION

The system was successfully implemented to move the system left, right, forward, backward, stop, fan on, fan off, AC on, AC off, light on, light off, TV on, TV off. This work helps the disabled persons to providing alternative methods to control the equipments. This system is specially designed for the people suffering from paralysis and also for elderly people. This project is intended for educational as well as research and development on arduino based robotics with computer vision.