

Arduino Based Voice Controlled System

Devyani Randive¹, Parag Mane², Priti Khapre³, Aniket Dange⁴

^{1,2,3,4}Student, Electronics & Telecommunication, RTMNU, Nagpur, India

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.

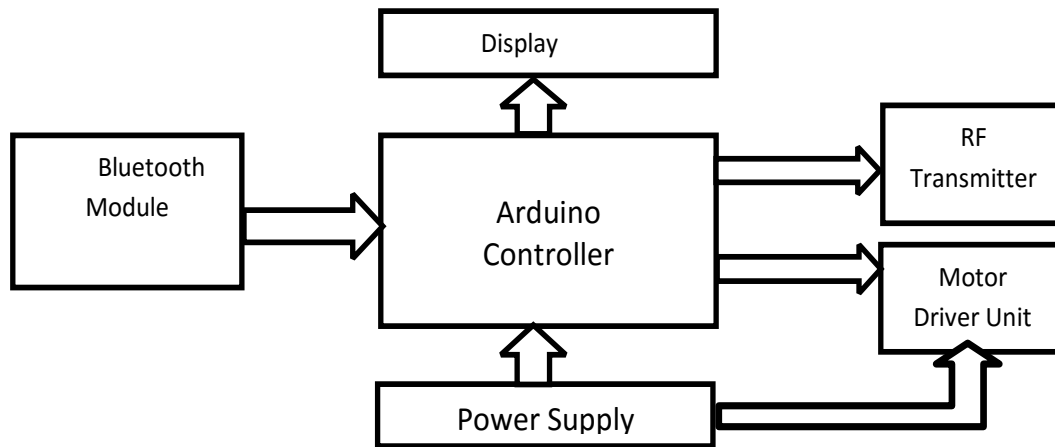
Simultaneously we can control various home appliances. This project is work as home automation system. The voice command is given by using mobile to the Bluetooth which has certain features like controlling the speed of the motor, sensing and sharing the information with phone about the direction and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

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. The home appliances can be control by two methods, by giving voice commands or by using mobile as remote controller.

METHODOLOGY



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.

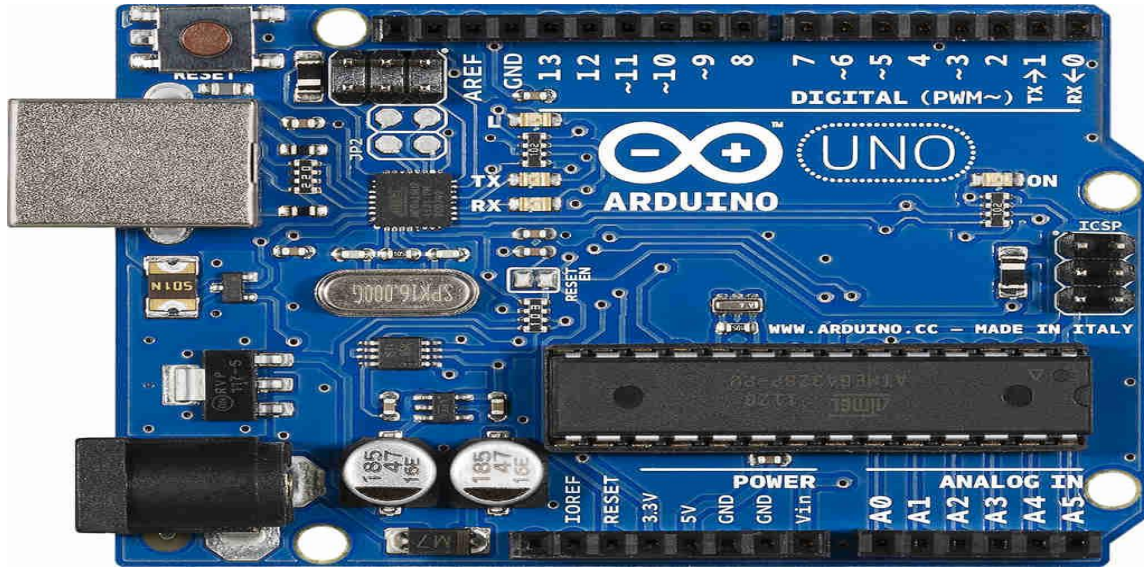


Fig. Arduino Board

Bluetooth module: The communication media between the user is provided by the Bluetooth module through the android phone and the system i.e. by giving voice command to the android phone. The user will send the command to the BT voice control for Arduino voice the software application installed in the android phone i.e. connected via BT module.

RF transmitter&Receiver: An RF module usually an electronic device which is used to transmit as well as receive radio signal between two devices. RF transmitter module is a small PCB sub assembly which has the capacity to transmitting a radio wave and modulates that wave to carry data. The approximate working range of RF transmitter is 10 meter.

Display: 16*2 alphanumeric display are used in this project, it is wide range of applications, including computers, word processors, photocopiers, point of sale terminals, medical instruments, cellular phones, etc. The 16*2 intelligent alphanumeric dot matrix displays is capable of displaying 224 different characters and symbols.

Motor driver Unit: The input signal is given to the motor driver from the Arduino with generate the corresponding output for motor this motor driver IC simultaneously drives two motor. DC motors are interface to the micro controller. The data is received by the BT module from android smart phone which is given as a input to the controller.

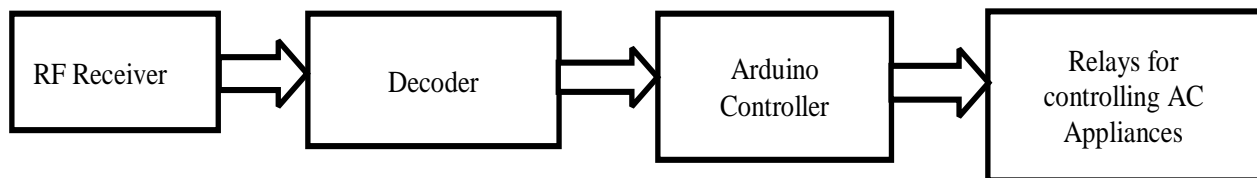
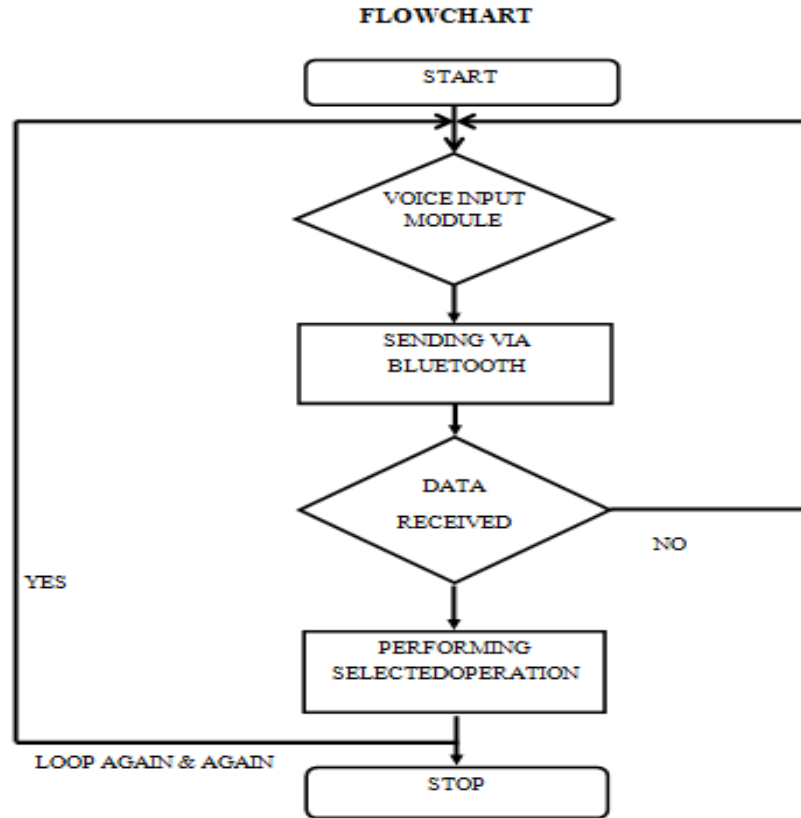


Fig. Block Diagram of Receiver

Decoder: Decoder is used to receive the signal from RF receiver and it decodes the data from the signal. And the output of the decoder circuit is given to arduino controller.

Relays: Relays are used to control the home appliances with the Arduino. The relays used in this system are 5V-5 pin relay. The relays are normally in closed state. When relay coil are energized the relay switches from normally closed to normally open state to electromagnetic induction.



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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