

# Voice Controlled Car based on Arduino

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**Abstract**— Voice controlled automotive system is extremely helpful in areas wherever there's high risk for humans to enter. Voice controlled automotive system is controlled through voice commands received via robot device. The dominant unit with Bluetooth device is achieved employing a Bluetooth module to browse and capture the voice commands. The robotic vehicle operates by the commands received via robot device, for the Arduino that is integrated within the system. To dominant the device it should be any good phone or the other robot OS. The transmitter uses as associate robot application is needed for transmission the given knowledge. The receiver finish reads these commands and interprets them into dominant the robotic vehicle. The robot device can sends commands to the vehicle to maneuver golem in forward, backward, right and left directions. After receiving the commands, Arduino can operates the motors to maneuver the vehicle in given directions. The communication between receiver associated robot devices is shipped as a serial communication knowledge. Arduino program is intended to maneuver the motor through a motor driver circuit as per the commands sent by robot device. Associate obstacle detector is another to guard the system from obstacles on the method by victimization associate inaudible detector.

**Keywords:** Voice Controlled Car, Arduino uno, Ultra sonic sensor

## I. INTRODUCTION

We are currently living within the twenty first century. Good phone has become the foremost useful and essential issue in our existence and routine. Robot application based mostly good phones have become additional powerful and equipped with many accessories and functions that are helpful for Robots.

This project describes a way to management a golem via voice commands victimization mobile through Bluetooth communication device, some options concerning Bluetooth technology, parts of the mobile and golem. We tend to gift a review of golems controlled by portable via moving the robot upward, backward, left and right aspect by the robot application like Arduino, Bluetooth. folks has modified with the victimization of Bluetooth devices at workplace or home, and therefore the wired digital devices transferred into wireless devices.

Here, we tend to are victimization robot application, interface microcontroller and Bluetooth communication device. We tend to are victimization Arduino computer code to move and interface the Bluetooth module with the assistance of microcontroller.

In step with commands received golem motion will be controlled from the robot device. We tend to derived straightforward solutions to produce a framework for building robots with terribly low price however with high computation and sensing capabilities provided by the good phone that's used as an effect device.

Android application based mostly Bluetooth controlled robotic automotive. Our main slogan of project is to regulate the robotic automotive with robot application. Here we tend to use principally Arduino UNO (ATMEGA 32), Bluetooth module (HC-05). we tend to interface the Bluetooth module with the system so we are able to simply management the system by good phone application. This project is additional necessary to the trendy society in context of spying and police investigation. Our project aims is to style a Robotic automotive that may be operate by victimization robot device. The dominant of the golem is finished wirelessly through robot good phone victimization the Bluetooth feature gift in it. Here within the project the robot good phone is employed as a distant management for operative the golem. The dominant device of the entire system may be a Microcontroller. Bluetooth module, DC motors ar interfaced to the Microcontroller. the info received by the Bluetooth module from robot good phone is fed as input to the controller. The controller acts consequently on the DC motors of the golem. In achieving the task the controller is loaded with a program written victimization Embedded 'C' language.

## II. OUR WORK

This project of ours is dominant automotive not by employing a sensors or transmitter however victimization Bluetooth that may be a terribly straightforward communication medium within the gift day. The remote during this project is associate robot device that has associate intrinsical Bluetooth module. The Bluetooth may be a serial communication medium through that we are able to connect 2 devices. Here we've got inserted a Bluetooth module that gets connected to the phone's Bluetooth, permits that enables} USA to speak and allows to require command over it.

The Bluetooth module doesn't work on its own in dominant the automotive. the most half in dominant the automotive is compete by the Arduino UNO that homes the micro-controller ATMEGA32. Arduino has compete a significant role within the robotic section and has created it easier to convert digital and analog signal to physical movements.

The project is Bluetooth based mostly as a result of it provides USA wider vary of management and additional potency. It additionally provides USA the advantage of fixing the remote anytime, which means that we are able to use any robot devices together with phones, tablets, computers. Physical barriers like walls, doors, etc. don't result in dominant the automotive.

## III. HARDWARE REQUIREMENT

### A. Arduino uno R3:

- Arduino may be a single-board microcontroller meant to form the appliance a lot of accessible that are interactive objects and its surroundings. The hardware options with AN ASCII text file hardware board designed around AN

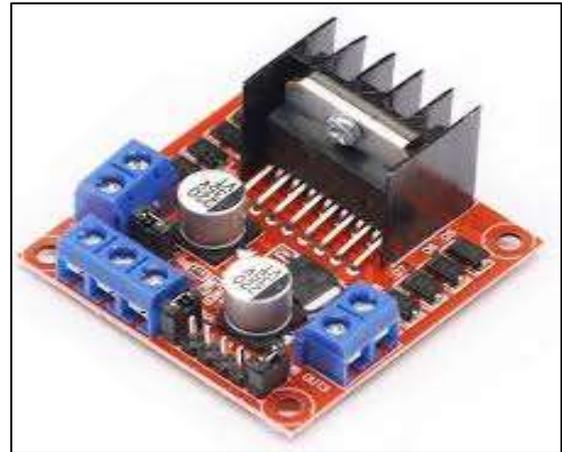
8-bit Atmel AVR microcontroller or a 32-bit Atmel ARM. Current models consists a USB interface, half dozen analog input pins and fourteen digital I/O pins that permits the user to connect varied extension boards.

- The Arduino Uno board is a microcontroller based on the ATmega328. it's fourteen digital input/output pins within which half dozen will be used as PWM outputs, a sixteen megahertz ceramic resonator, AN ICSP header, a USB association, half dozen analog inputs, an influence jack and a push button.
- This contains all the desired support required for microcontroller. so as to urge started, they're merely connected to a pc with a USB cable or with a AC-to-DC adapter or battery. Arduino Uno Board varies from all alternative boards and that they won't use the FTDI USB-to-serial driver kick in them. it's featured by the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial convertor



#### B. Motor Driver (H Bridge):

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#### C. Bluetooth Module HC 05:

Bluetooth may be a wireless technology which will simply interconnect mobile phones, PDA, and private pc with one another employing a short- vary wireless association. employing a Bluetooth module chip, wireless Bluetooth communication will be established between 2 devices victimisation waterproof address as every device has its distinctive waterproof address. HC-05 module is a simple to use Bluetooth Serial Port Protocol module for a wireless serial association setup. This module relies on the semiconductor radio BC417 a pair of.4 gigacycle per second Bluetooth chip with CMOS technology and it uses an external eight Mbit nonvolatile storage. HC-05 module operates on 3.3V power offer



#### D. Ultra Sonic Sensor:

An supersonic sensing element may be a device which will live the gap to AN object by victimisation sound waves. It measures distance by causation out a undulation at a selected frequency and listening for that undulation to heal. By recording the period of time between the undulation being generated and also the undulation bouncing back, it's doable to calculate the gap between the measuring device sensing element and also the object.



#### IV. SOFTWARE REQUIREMENT

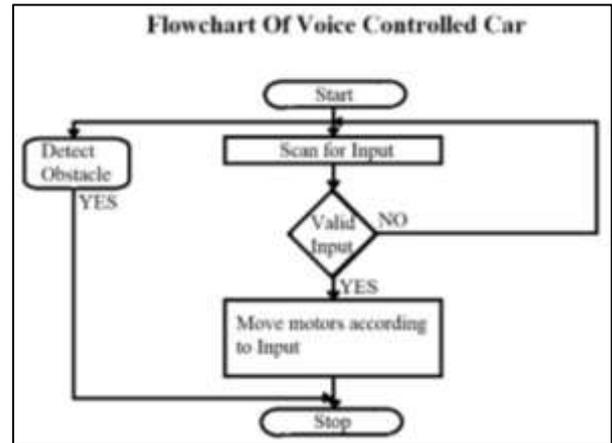
##### A. Arduino IDE:-

- The Arduino integrated development atmosphere (IDE) is a cross-platform application (for Windows, macOS, Linux) that's written within the programming language Java. it's wont to write and transfer programs to Arduino compatible boards, but also, with the assistance of third party cores, alternative merchandiser development boards..
- The ASCII text file for the IDE is free underneath the GNU General Public License, version 2. The Arduino IDE supports the languages C and C++ using special rules of code structuring. The Arduino IDE provides a software library from the Wiring project that provides several common input and output procedures. User-written code solely needs 2 basic functions, for beginning the sketch and also the main program loop, that are compiled and connected with a program stub main() into an executable cyclic executive program with the GNU toolchain, additionally enclosed with the IDE distribution. The Arduino IDE employs the program avrdude to convert the possible code into a computer file in positional representation system cryptography that's loaded into the Arduino board by a loader program within the board's computer code.

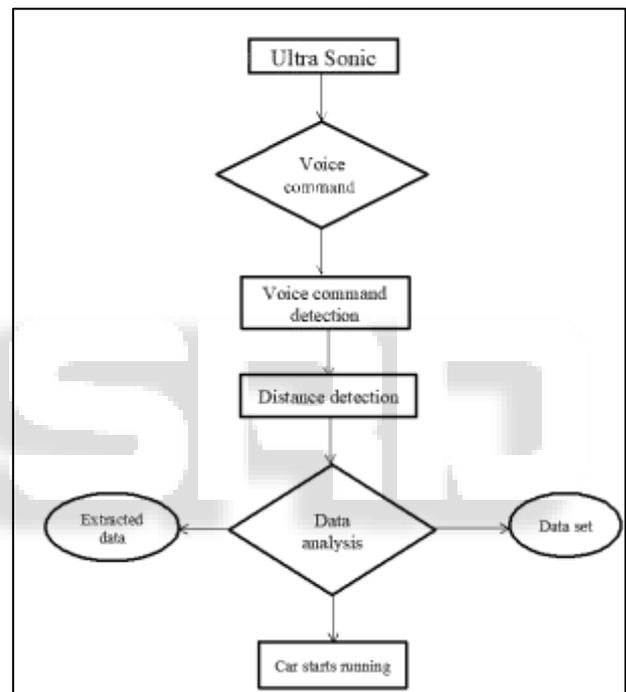
#### V. WORKING

- The automotive runs on straightforward voice commands forward, back, left, right, stop.
- The voice command is given to the humanoid application as input.
- This input is given to Arduino by Bluetooth module and Arduino offers commands to the motors as programmed.
- With facilitate of servo and supersonic sensing element it will sense the obstacles

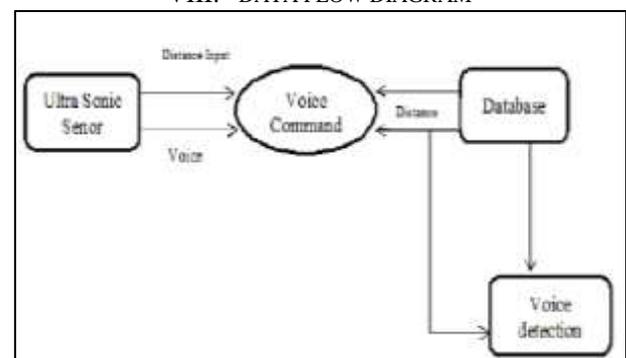
#### VI. FLOW CHART



#### VII. ER DIAGRAM



#### VIII. DATA FLOW DIAGRAM



#### IX. CONCLUSION

- The voice recognition package has AN accuracy around seventy fifth in properly distinguishing a voice command.

- But it's sensitive to the encompassing noises. there's an occasion of misinterpreting some noises mutually of the voice commands given to the mechanism.
- Also the accuracy of word recognition reduces in face of the noise. The sound returning from motors encompasses a vital impact on accuracy.
- There are some drawbacks within the mobile platform.
- In these model we are able to add extremist sonic sensing element for stopping the vehicle if any obstacle comes

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