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VOICE CONTROLLED ROBOTIC CAR BY USING ARDUINO KIT

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Abstract: This research paper is made for how to control Robotic car by the voice command through remote operation and Android application along with an arm series type micro-controller is with least for doing the desirable operation there in a HC-05 Bluetooth module connected in Robotic car through Android application. There is a provision for sending the commands through the Android application with in form of power Button or voice command for the moment of the robotic vehicle to de Caesar Servo Motor are any interests by the microcontroller switch price or voice command are taken by theRF transmitter and Bluetooth which then connected to Digital encoded data for getting enough rangeabout hundred metres from the Robotic car this Robotic car is used in an emergency for today directedcommand by voice when physical commands are hard to Voice command make this Robotic car moreconvincing and easy to the for old any age group nowadays. The branch Robotics is playing major roleof enhancing in in Lifestyle to minimise the direct physical labour. Also, it has much scope in the field of artificial intelligence. So we chose this project which which is the future of department and nutrientin technology**.**

Keywords: Arduino, Android, Bluetooth, Servo Motor, Transmitter, Robotic.

I. INTRODUCTION

In today's Era the branch robotic is playing virtual role in building the new trend in technology. We have discovered number of ways to build a robotic devices still we are not enough sure, How many ways are still yet to discover to the explore this field of Robotics. The equipment, We are using here consists of controller fitted to communication module via through Bluetooth Framework device are inconnected with the motor and remaining other components and parts of the voice Robotic car as thefunctions are already programmed in the Android app are given the voice commands through the Bluetooth to the command system and Robotic car.

Due to the movement of Motors in same and opposite direction. The Robotic car will move in respect to direct kitchens Lite back forth left and right.All the commands are given through the app of bluetooth with the help of smartphone which is utilisedby the user. In this project we are designing Robotic car which works on the voice commands given bythe Bluetooth app of the smartphone by the user this project in a large scale will help to minimise thephysical labour and make things more technological.

this project mainly AIMS at two objectives very first is to used robotics and second one is to utilise voice command technology since 1960 the Robotics has you world time to time and today's development in the field is much more appreciable. This trend of technology is used now in differentfields of life like space research small drones in security purposes and many more industrial utilisations.

II. METHODLOGY

1. Hardware Requirements

A. Arduino Uno Board:- This is the board of microcontroller. based on 80 Mega 328p it consists of 14 digital input and output pins the main function of Of arduino UNO is to support the microcontroller. It is very easy. To connect it. It is a given computer with the help of the cableof USB.\

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B. DC motor:- there are two types of currents alternating current and direct current out of whichthese motor are work on direct current Motors are function with the the connection and Corporation with the power electronic instruments if the robotic vehicle is large then 300 RPMside shaft heavy duty dear motor is much desirable in automation system the range of runningmotor is from for holds to almost 12 holes and it gives 300 RPM at 12 holes for best coupling the dimensions off the motor have the diameter. about 8 mm the driving shaft 17.5 mm in length

C. L298N motor driver motor:- driver Are high voltage? integrated Monolithic devices which have driver and high current with 4 channel design to get detail or p p l standard logic levels which are capable of driving release solenoids DC stepping Motors And power switching transistors. enable input is there in every pair of channels for completing the operations at lower voltage level and individual input supply Is provided? these motor drivers are capable to switch The frequencies atmost 5 khz of different applications Motors Are easily driven? bythe motor shield the UNO board used by the Servo Motors is off plus 5 old

D. HC-05 Bluetooth module:- for wireless connection this module which is used mostly This model can be used. in both types of configuration like slave or a master configuration with thehelp of Bluetooth this model helps other devices to communicate with each other there are two modes out of them is command more And the other is data mod.

E. Battery:- Battery to complete the the circuit the battery is used. forgetting the disease supplyis about 9 holes 212 olds

2. Software Requirement

Arduino IDE for using arduino programming which is best on C cos C + + language

3. Block Diagram of Project

In this fig.1 Block diagram mainly consists of two sections. very first section is transmitter section which include smartphone with Android app and phone Bluetooth second section Is a receiver section. which include hc-06 Bluetooth Audi noboard 293 e d motor driver IC left Android DC Motors

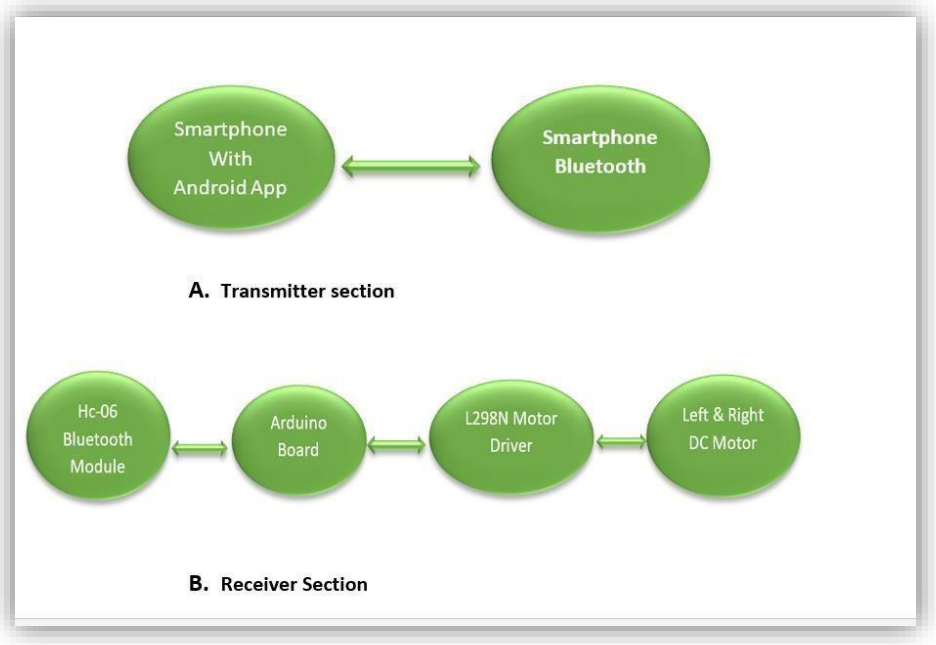

Fig. 1 VOICE CONTROLLED ROBOTIC CAR

4. Circuit Diagram

In this circuit , As per circuit diagram the main constitutenen are Arduino board , HC-05 Bluetoothmodule , DC motors and L293N motor drivers and battery.

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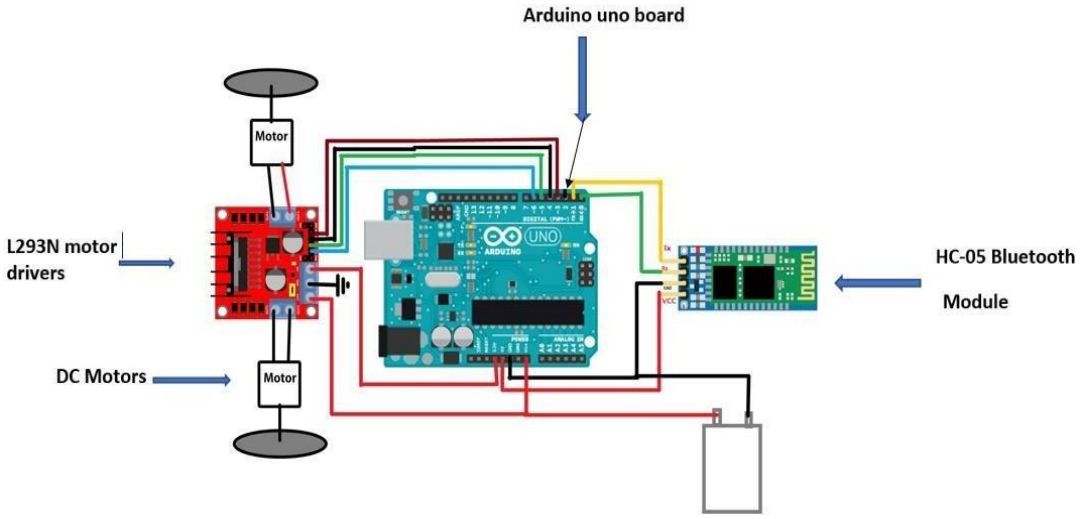

III. IMPLEMENTATION

Step-1: start
Step-2: Establish connection between the smartphone and the vehicle
Step-3: Check if connection established
Step-4: If the connection established, user will speak the predefined commands into the microphoneof the smartphone
Step-5: Speech to Text conversion occurs and is further relayed.
Step-6: Command is transmitted to the Bluetooth module
Step-7: It is further communicated with the Arduino Uno which furtherprocesses the command
Step-8: Arduino Uno commands the Motor Controller IC accordingly
Step-9: The Motor Controller in turn runs the two DC motors and vehicle executes the command as per user's desire
Step-10: Stop

IV. USES

- It can be made into cleaner bot.
- It can be used as a carrier for small things such as dinner plates at home.
- It can be used to serve dishes in restaurant.
- It can be advanced into security bot by using some sensors and used in the security.
- It can be used to take care of patients suffering from eye diseases, dimentia, mentalillnesses, and many more.

V. ADVANTAGES

1. It is help to increase productivity in many businesses, such as in healthcare industries.
2. It is capture speech much faster than you can type.
3. we can use text-to-speech in real-time.
4. the software can spell the same ability as any other writing tool.
5. It helps those who have problems with speech or sight.

VI. DISADVANTAGES

1. Voice data can be recorded, which some fear could impact privacy.
2. The software can struggle with vocabulary, particularly if there are specialist terms.
3. It can misinterpret words if you don't speak clearly.

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VII. CONCLUSION AND SCOPE FOR FUTURE SCOPE

In this project completely reforms the robotic vehicle and gives it a new dimension.It is easily recognize the voice commands and runs smoothly. Further enhancementin project can be used for Home security and military purposes where if the commands can be given to robot without risk by increasing the range and byinstalling cameras.

1. In this research work has been narrowed down to short range Bluetooth module. Ausing a long range modules and other connectivity devices will result in connectivitywith the robot for long distances.
2. In power Optimization such sleep and wakeup schedules can be incorporated.
3. In Image processing can be implemented in the robot to detect the color and theobjects.
4. In thermal camera can be installed to sense the heat emitted by bodies useful inmilitary purposes to detect enemies on the lines.
5. If automatic Targeting System can be implemented in the robot for tracking thetarget.

REFERENCES

[1] Srivastava, Shubh, and Rajanish Singh. Information of the "Voice controlled Robot car usingArduino." International Research Journal of Engineering and Technology

[2] M.Bhanu chandu, Kirupa Ganapathy,2020, Methodology “Voice Controlled Human AssistenceRobot”, 7281-5197-7/20.

[3] Mahesh Reddy, Suram Pavan Kalyan Reddy, G R Sai Karthik, Priya B.K,2020, Intuitive Voice forControlled Robot for Obstacle,

[4] Ms. M. Ramjan Begum, Mr. S. Chandramouli, Mr. T. Gowtham,2020, system Design AndDevelopment

[5] Mark W. Spong , “Robot Modeling and control”.