

VOICE COMMAND ROBOTICS CAR

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ABSTRACT

Now a days the robotics car are very uses full for the people which is gives us to very benefits. This paper is to designed to controlled the Voice Command Robotics Car, the command/voice command will be given directly by the operator of the car. The Robotics Car keeps the ability of sensing its environment and moving safely on the track. The Bluetooth module HC-05 will be interfaced with Arduino on the car for receiving the voice command. The Android app will be used for providing the specific command to the car. Now, on the receiving phase, a Bluetooth module HC-05 will receive the commands. After it recognize the command message, it will forward those command message to the Arduino /Microcontroller. Now, the Arduino will analysis the command and perform the appropriate action according to voice command message.

KEYWORDS: Bluetooth Module, Android App, microcontroller, Transceiver.

I. INTRODUCTION

In this proposed system we have design a car which can be controlled by the human being voice ; and it is called as the voice command robotics car. The proposed system will be able to enable the movement according to voice command. This project Voice Controlled Robotic Car helps to control the robot through the voice command message received via Bluetooth module provided by Android application. The Bluetooth module is used to receive and recognize the voice command message.. In this project we will be operating our robot through voice command, which is given through voice command, which is given through user on the android application and forward it to the Bluetooth module HC-05 through Bluetooth technology. The Bluetooth module will receive the command and passed it on to microcontroller, where all the processing work of the voice is done and allow vehicle to move according to voice command ; the command will be move forward , move backward , turn left , turn right , and stop.

1.1 Car: Car is the main architecture of our project because the main concept is based on smarting the stick an also all the components required will be assembled on the car.

1.2 Arduino: Arduino is a microcontroller and it is also known as the open source of electronics platform based on easy-to-access hardware. It is intended for anyone making interactive projects. ARDUINO is capable of sensing the environment according to inputs received from any sensors and it will affects its surrounding by controlling lights.

1.3 Bluetooth Module: The Bluetooth module is easy to use module and it is designed for transparent wireless serial connection. The Bluetooth Module can be used in a Master or Slave configuration, making it a great solution for wireless communication.

1.4 Ultrasonic Sensor- Ultrasonic sensor is a type of acoustic sensor divided into three broad categories: transmitters, receivers, and transceivers. The electric signal will be converted into ultrasound with the help of transmitters, receivers will convert ultrasound into electrical signals and transceivers can perform both transmit and receive task which can be used to sense the obstacles in our project. Ultrasonic sensors will measure distance by using ultrasonic waves. The sensor head will emits an ultrasonic wave and receives the wave reflected back from the target.

II. LITERATURE REVIEW

Alice Joseline and Mrs. S. Benila . (2018)

This paper introduced the voice recognition concept for easy identification and assembly of parts for auto motives of a car. The system is suitable for real time implementation of manufacturing process. The project consist of Artificial Intelligence algorithms such as speech recognition decision making planning algorithms and also modules for voice recognition like IOT, Arduino, relay and a robotic arm. The main objective of this paper is to identify the speech of the operator of car among the speech among other population of speakers.

Prof. Bhuvaneshwari Jolad, Mohnish Arora, Rohan Ganu and Chetan Bhatia . (2018)

The main purpose this project is to have control on the movement of vehicle by using voice command. The command will be send by using the android application which will be connected to robotics car through Bluetooth module. This system contains transmitter to convert analog voice commands to digital word sequence. Receiver MAX 232 transceiver is used to decode the received signal for serial communication with the Bluetooth module.

Hans Tiwari and Ashish Jha . (2019)

This project is consists of an autonomous vehicle, which is controlled using specific voice commands defined for a particular action. The Alexa is used to transfer voice command to the car. The robotics car will be able to move according to the command given by the user ; like turn left , turn right , move forward , move backward , stop .

Ayesha Shafiq, Humera Tariq, Fareed Alvi and Usman Amjad . (2017)

The main purpose of this project is to design or build a robotics car which is capable of detecting the voice of user and it should not give any respond on others unauthorized voice. The module will be using MEL frequency cepstrum coefficient (MFCC) for extracting the features and hidden markov model (HMM) for recognizing the voice of valid user or operator of the car

R. Veeramani, R. Madhanmohan, Deepak Prajapati, Aman Kumar and Sidharth Kumar .(2019)

The main objective of this proposed system is to develop a robotics car which can be controlled and perform certain action by human voice or speech or command and this project aim to reduce the parking problem and also to utilize it on the defence sector.

C. Jeeva, Anwar Naseer Khan, Junaid Azad Wani and Amit Kumar . (2016)

In this paper the goal of Voice Sensor Vehicle is to listen and act on the commands received from the user. Earlier some implementation has been done on this technology. The previous work included the variation of the speed of the vehicle in zones like school, hospital, U-turn and highway for accident prevention. The project contain a smart zone based vehicle speed control by Using RF and obstacle detection and accident prevention system. SO the main objective of the project is when vehicle enters school (any institutional) zone or hospitals zone will reduce the speed of the vehicle with RF Module with respective place or We can reduce it with the Voice Based Module anywhere u can reduce the speed of the vehicle

Arti Paswan, Ajay Kumar Gautam, Bhartendu Vimal, Farheen and Arun Kumar Mishra. (2019)

In this project the prototype of the robotic car has been designed which can operate according to human voice. The prototype is been made by making the use of two technology mainly Human-Computer Interaction(HCI) and Human- Robot Interaction (HRI). The project also include the utilization of IOT and wireless camera.

P R Bhole, N L Lokhande, Manoj L Patel, V D Rathod and P R Mahajan . (2017)

The main objective of this project Is to make a robotics car operating with human voice , with the aim of reducing the human effort while driving a car. The proposed system also elaborate the use AI sensor on it.

B. Sathish kumar and Dr. Radhika Baskar. (2019)

In this proposed system the recognition will perfectly works on normal environment and also recognition accuracy is upto 90%.

Ayesha Shafiq, Humera Tariq, Fareed Alvi and Usman Amjad4. (2019)

In this paper a model of robotics car is been made which is capable of recognizing the voice command given by the user and perform certain action according to it. This system is being implemented with two technology Mel Frequency Cepstrum Coefficient (MFCC) which is used for extracting the feature and Hidden Markov Model (HMM) which is used for speech or voice command recognition.

III. WHY VOICE RECOGNITION?

To make the perform certain action by using voice command is the main proposed of our project, where the operator will provide the certain voice command message and the car will perform the action according to it. So we are making the user friendly car and voice recognition will be the best methodology for controlling our robotics car.

IV. OBJECTIVES

The main objective of our project is to make the robotics car which is user friendly and can be controlled by the voice command message provided by the operator. The voice command will be processed with the help of mobile phone and the human voice , which will be in the form of speech will be converted into text will be done by android app using the google assistant . The command will be sent to bluetooth module on car via Bluetooth of mobile app The Bluetooth module will forward the text or command or the ARDUINO UNO. ARDUINO or microcontroller will check the command and act accordingly.

3.1 Algorithm –

Step 1: start

Step 2: creating a chassis and attached all the components.

Step 3: check whether all the components are connected properly or not.

Step 4: After connecting all the component link the Bluetooth module with the Android App.

Step 5: once it will be done, the commands gives to the android get send to the Arduino via Bluetooth module.

Step 6: after Arduino reads the data and gives output to the user as a vice instruction.

Step 7: then we compare it to the command. If it is matches the command will carried out.

V. COMPONENTS USED

In this table we have to mentioned the differences components are required were during the designed our projects.

Table-1: Components requirements-

Sl.No.	Components	Specification
1.	Arduino	UNO R3
2.	Bluetooth Module	HC-05
3.	Motor Driver	L298N
4.	Ultrasonic Sensor	HC-SR04
5.	Battery	12V
6.	Power Bank	1000MAH
7.	Chases Board	30 Cm
8.	Wheel	2x Wheel
9.	Components Used	Jumper Wires

VI. METHODOLOGY

ARDUINO is the main architecture of our car on which all the components are connected. Sensor units is the one where all the sensors are they are attached and it sense the surrounding and send the data to the ARDUINO. After ARDUINO reads the data and gives output to the user as a voice instruction. Power supply unit supplies power to the ARDUINO. The Bluetooth module unit will be used to receive the voice command from the user and convert that analog signal into digital bits and pass it onto the ARDUINO (microcontroller). Motor-driver acts as a junction or connecting platform to all four DC gear motors with it.

VII. CONCLUSION AND FUTURE SCOPE

This paper completely reforms the robotics vehicle gives the new way. On behalf of the research this technology will be very helpful to those people who are physically challenged. This technology could reduce the road accident, but to implement this technology all the Vehicle in a lane should be implemented with the same technology. The robotics vehicle is fully based on voice command and also perform the action according to the command provided by the operator or user with the help of android application. The Bluetooth will send the command to the Bluetooth module implemented on the car and Bluetooth module will forward those command to the ARDUINO UNO or microcontroller and microcontroller will check whether the command is valid or not and perform action according to it.

VIII. REFERENCES

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