Automated Dashboard Control in IoT

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ABSTRACT: This project builds a voice controlled car that can be controlled by voice commands which reacts in accordance to the corresponding voice command. However noise and distance handling require future development. Simple voice commands like left, right, forward, back, stop are used to run the car. These commands are given to Bluetooth module via an android application. The Bluetooth module and control unit are combined to store and test the voice commands. When an instruction for the automobile (car) is identified, a command message is sent to, the Microcontroller of the car by the Bluetooth device. This command is analysed by the microcontroller and followed up. In the vehicle, Image processing can be utilized to become aware of the shade and the obstacles. This work has been limited to the ZigBee system in the short-range (100mts range), and is linked to the car over long distance via long-range modules.

KEYWORDS: Automated vehicle, IoT with NLP, Voice Command Vehicle.

I. INTRODUCTION

The surprising raise in the utilizing of robots and automation offers various advantages as well as it has drawn the attention of both academic investigation and commercial programs The analysis on numerous technique of controlling robot has accomplished quite a few success by introducing a number of innovative & unique methods of robot movement control. Verbal interaction intended for robot controlling is actually sort of an innovative process among many methods which are introduced regarding robotics control. Previous works on voice controlled robots shows that the design of those robot were complicated and none of them were able to interact with users. Robots are anticipated to socialize along with its user however it has not yet arrived at this kind of level, There are numbers of techniques to control robot using voice identification yet it is reasonably limited. The development of a voice controlled robot is demonstrated in this paper which has the ability to follow voice command from user and does communicate with user by using pre-recorded human voice sound. Previously developed robot used ZigBee which is a costly device. Another Voice Controlled Robotic Vehicle utilized computer with a sound card and a microphone which was not user friendly A technique to give voice command using android based smart phone using Bluetooth is presented to construct the robot based on microcontroller.

The robot can accept instructions from users verbally and interact with user by speaking various sentences which will make it user friendly.

II. LITERATURE SURVEY

This chapter deals with the survey of various papers that have contributed to the vehicle speed control system. Different types of vehicle speed limiters are in current use for regulating the traffic, especially across the roads near populated areas. The current statistics showing the high traffic death rates occurring in critical zones. The following survey gives the detailed review of the speed control systems for the vehicle. Ankita Mishra, Jyoti Solanki, Harshala Bakshi, Priyanka Saxena, proposed "Design of RF based speed control system for vehicles"[2]. Currently people are driving very fast; accidents are occurring frequently, the valuable life is lost by making the mistake driving (school zone, hills area, and highways). So in order to avoid the accident send an alert message and to control their vehicle speed the highway department used the signboards. The signboards are used view which kind of accident takes place. These is used to intimate the critical zones and the speed limit automatically, using RF technology. Smart Display controller meant for vehicle speed control design using embedded system and monitors the zones.

Smart Display & Control (SDC) can be custom designed to and place in the vehicle's dashboard, on the vehicle. The project is composed of two separate units: transmitter unit and receiver unit. (Speed display and control) unit. Once the information is received from the transmitter, the embedded system placed in the vehicle run automatically alerts the driver. ISSN: 2278 – 909X International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume 7, Issue 6, June 2018 641 All Rights Reserved © 2018 IJARECE Leena Thomas etal (2014) proposed "Automatic Speed Control of Vehicles Using RFID"[6].This paper aims is to control the speed of the vehicles in the critical zones such as schools, hospital zones etc. Nowadays the drivers drive

vehicles at high speed without considering the safety of the public. The traffic police are not able to control them. Also, it is not possible to monitor these areas throughout An RFID is used for this method This paper presents smart zone based vehicle speed control using RF. The method is used to detect and prevent the accident system. Whenever the vehicle is within the zone, the vehicle speed is controlled, for every time the vehicle speed is decreased to some cut off and control the speed when it move in acritical zone, and then the vehicle can get accelerated by it. Detects Obstacles and prevents Accidents by Stopping Vehicle.

III. OBJECTIVE

The main objective of the project is to control the robot by the voice or push buttons. Human Robotic Interaction is achieving. The goal of voice controlled Robot is to listen and act on the commands received from the user.

IV. PROPOSED SYSTEM

The main objective of developing this Voice recognition vehicle microcontroller project is to control Vehicles according to human voice command. Project Architecture follows with human input voice and amplifiers, when human sends voice then it automatically converts the voice from analog to digital signals via converters, here band pass filters are connected to fingerprint templates to generate fingerprints, this module works with comparing and controlling digital signals and finally this signal goes to the vehicle, If the vehicle received correct signal which is sent be user then it can respond as per user project development. Now a day all robotics are working with signals and voice to control their functionality. Micro controllers, Mat lab, Micro semi conductors are used to develop this electronics system. This application mainly useful for speech enabled vehicle design and development. Advantages of this Voice recognition vehicle follows we control the any electrical or electronic device with voice signals.
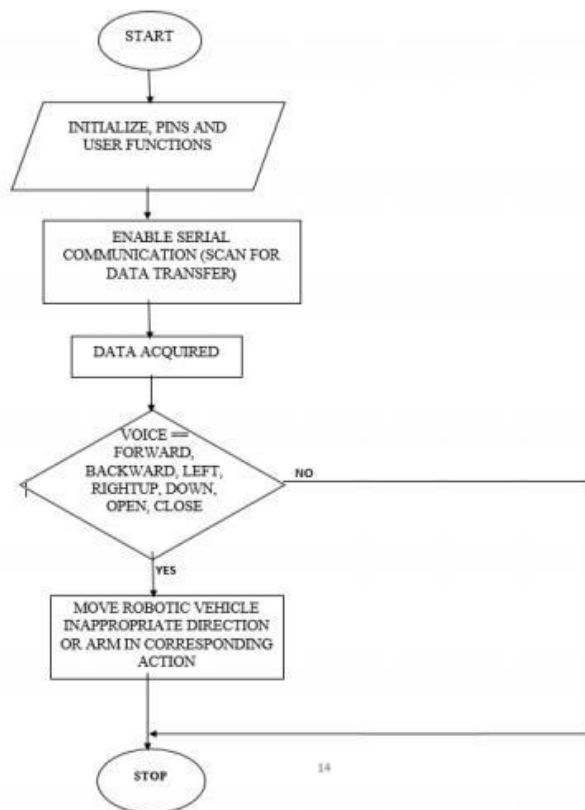

Figure 1: Application flow chart

Voice recognition system

The voice recognition system is the device's capacity to understand spoken instructions. It is actually a type of embedded system. When used with a computer an ADC is used which converts varying analog voice signals into digital pulses or digital signals, to be easily understood by the computer. The hard drive already has the forms of speech stored in it. The voice signal is decoded and checked against the stored forms. Sometimes due to the presence of other voices and noises, the output does not come out to be accurate.

Operation and working voice recognition security system

In order to convert the speech or spoken words into a computer command, several complex steps are performed by the computer. The analog to digital converter converts the voice signal into digital signal for the computer. The ADC digitizes the sound wave at frequent intervals by taking some precise measurements. This sampled or digitized sound is then filtered in order to remove noise. This is also done to separate the sound in different bands of frequency. Sound also gets normalized by it. Different people have different speed of speaking, so the sound is adjusted such that it can match with the speed of the stored sound template in the memory of the system. The next step is to divide the signal in smaller segments as few hundredths or thousandths of a second. These signals are then matched with the known phonemes. The smallest element of any language is said to be a phoneme. In the English language, there are approximately 40 phonemes. Different languages have different number of phonemes. Next is the most difficult step in speech recognition. The phonemes are examined in the context of other phonemes which are around them. A complex statistical model then examines the contextual phoneme plot and it is compared with a large library of words, sentences and phrases. Then the program finally determines the words being said by the user and displays the output as text or issues command. The earlier speech recognition systems applied a set of syntactical and grammatical rules that if the spoken words follow these rules then the words can be determined. But the human language cannot be modeled by just a set of rules.

V. SYSTEM IMPLEMENTATION

Implementation is the stage of the project when the theoretical design is turned into a working system. This is the final and important phase in the system life cycle It is actually the process of converting the new system into a operational one.

VI. RESULT

The vehicle is fully voice automated and functioning at the best. The vehicle has a good battery capacity for a 5 hours long drive (protype). I have attached the imaged of the vehicle as well as the screenshot of mobile application below.
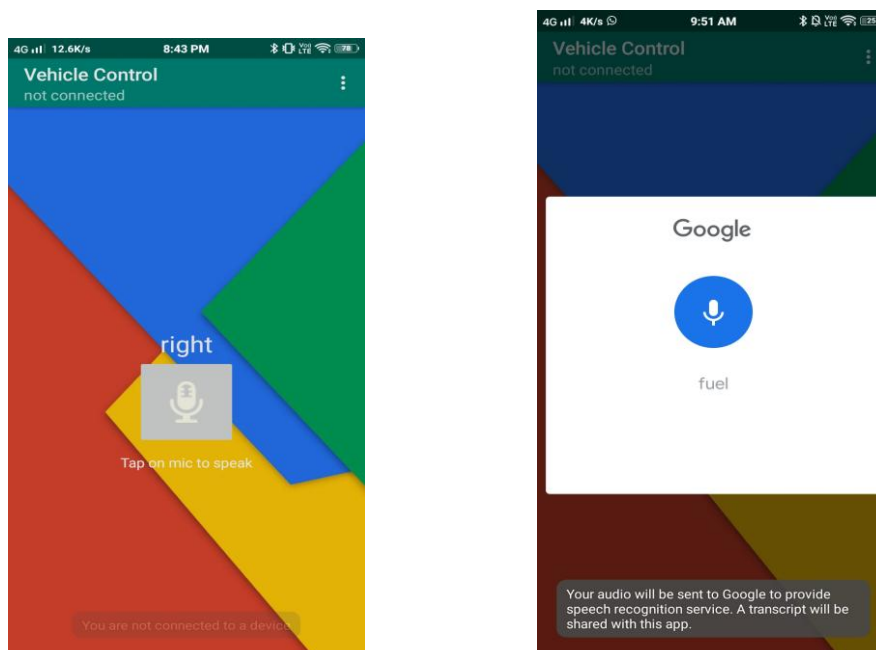

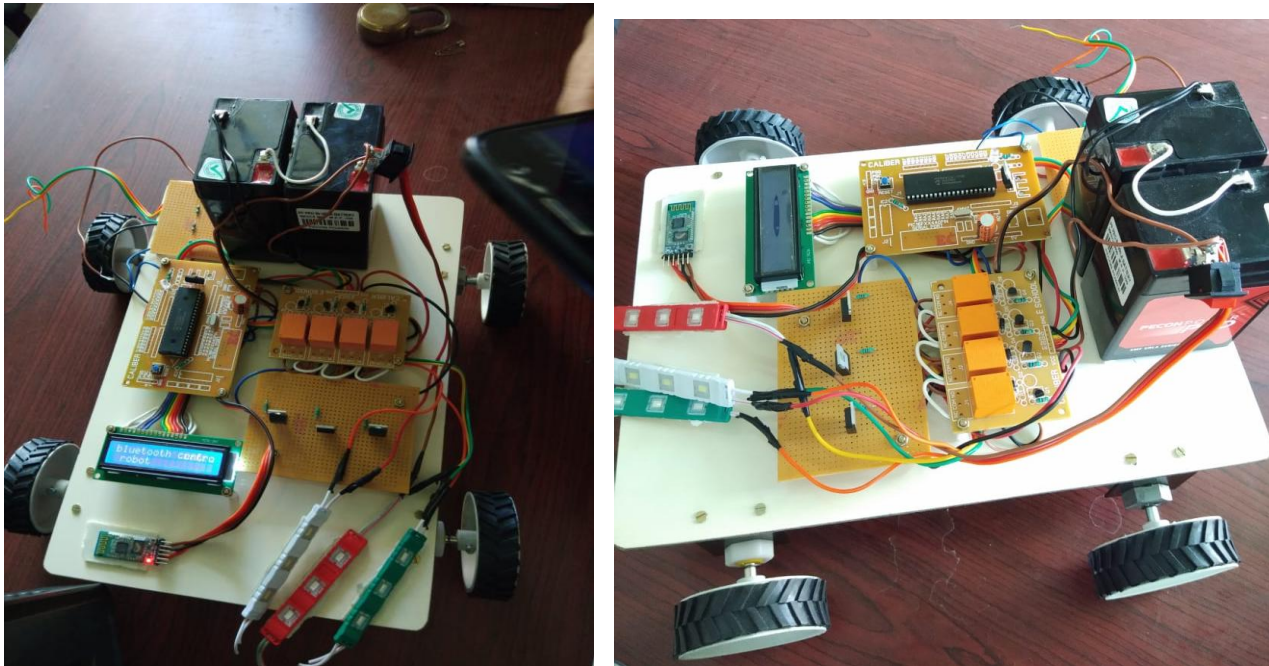**Figure 2,3:** Screenshots of the mobile voice commanding application

Figure 3,4: Four wheeler vehicle prototype that accepts voice command

VII.CONLUSION

Conclusion In this paper a method of word speech recognition system was proposed to control the vehicle and therefore make proposed technique be more efficient in real time operation used in control. In our proposed project In this paper the hardware used for making of the vehicle is also presented and the android app working which will control the robot. The communication channel which will carry the signal will be 2 types that is cellular connection for word recognition internet connection and for clear connection to the robot instead of using an analog connection we have used a digital connection that is via Bluetooth.

VIII. FUTURE ENHANCEMENTS

This experiment was limited to a brief zigbee device (range 100 meters),and is linked to the car over long distance via long-range modules. Sleep and wake-up routines may be enforced for energy enhancement. In the vehicle, Image processing can be utilized to become aware of the shade and the obstacles. For additional proper service servo motors can be deployed. A robot may include an automated targeting system to monitor the aim.

REFERENCES

1. Byoung-Kyun Shim ; Yoo-Ki Cho ; Jong-Baem Won;Sung-HyunHan Control, Automation and Systems (ICCAS),2011 A study on real-time control of mobile robot with based on voice command, 11th International Conference on Publication Year: 2011 www.migi.com for selecting motors and other robotic concepts.
2. Sung-Won Jung ; Ki-Won Sung ; Moon-Youl Park ; Eon-Uck Kang ;Won-Jun Hwang ; Jong-Dae Won; Woo-Song Lee ; Sung-Hyun Han Robotics (ISR), 2013 A study on precise control of autonomous driving robot by voice recognition ,44th International, Symposium on DOI:10.1109/ISR.2013.6695640 Publication Year: 2013 www.migindia.com/modules.php?name= News&fi le=article&sid=22
3. A paper on Arduino Based Voice Controlled Robot, K. Kannan,PG Scholar, Embedded System Technology, SRM University, Tamilnadu, India, Dr. J. Selvakumar, AP (S.G)