Android Blue Tooth Base Control Fire Fighting Robot

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Abstract: **This project entitled as "Android Bluetooth Base Control Fire Fighting Robot" was created and developed effectively. A Leg series controller can be used plus a Bluetooth device interfaced towards the control unit for sensing the signals sent by Android application running mobile phone. Using a menu all we're doing is restricting the input domain space. Robots are indispensable in lots of manufacturing industries. This is because the price each hour to function a robotic is a small fraction of the price of a person's labor required to carry out the same function. Greater than this, once designed, robots frequently perform functions having a high precision that surpasses that of the very most experienced human operator. Our fundamental idea would be to develop some kind of menu driven control for the robot, in which the menu will probably be voice driven. The machine designed is really a speech realizing system. Speech recognition is the procedure of recording spoken words utilizing a microphone or telephone and transforming them right into a digitally stored group of words. Within this project, we'll describe concerning the voice recognition modules with their working procedure and programs. This project is really a fine mixture of Android mobile technology and embedded system. This project includes a Bluetooth receiver. This thesis aims to supply simple recommendations for individuals thinking about building robots.**

Keywords: **ARM Series Controller; Android Application; Bluetooth Device; Rack & Pinion; Fire Fighting Robot;**

I. INTRODUCTION

The work is made to control a automatic vehicle by voice or touch instructions for remote operation. Remote operation is accomplished by wise phone/Tablet getting Android Operating System upon a Graphical user interface (GUI) based voice operation. The transmitting finish uses an Android application by which the voice/touch instructions are sent as digital bits through Bluetooth [1]. In the receiver finish, these instructions can be used for manipulating the robot to really make it move ahead, backward, left, right or moving the sprinkler i.e., firefighting equipment. In the receiving finish, four motors are interfaced towards the ARM controller where they are utilized for that movement from the vehicle and water sprinkler for fire fighting. Serial communication data sent in the Android application is received through the Bluetooth receiver interfaced towards the ARM controller and can control the automatic vehicle [2] [3]. Robots are made and designed to become job specific. Robots require a mix of elements to work: sophistication of intelligence, movement, mobility, navigation, and purpose. Without risking human existence or limb, robots can replace humans in certain hazardous duty service. Robots could work in most kinds of polluted conditions, chemical in addition to nuclear. They can be employed in conditions so hazardous that the unguaranteed human would rapidly die. The objective of this project would be to develop a automatic vehicle that could be controlled using voice instructions.

Our bodies are a prototype of the identical. We're not striving to construct a robotic which could recognize lots of words. Our fundamental idea would be to develop some kind of menu driven control for the robot, in which the menu will probably be voice driven. The machine designed is really a speech realizing system. Speech recognition is the procedure of recording spoken words utilizing a microphone or telephone and transforming them right into a digitally stored group of words. Speech recognition technologies have endless programs. Generally, such software programs are employed for automatic translations, dictation, hands-free computing, medical transcription, robotics, automated customer support, plus much more. Despite its weak points, speech recognition is rapidly growing in recognition. Over the following couple of years, professionals state that speech recognition would be the norm in phone systems around the world. Its spread is going to be assisted because voice is your best option for controlling automated services in places where touch tone phones are uncommon. Voice enabled products essentially make use of the principal of speech recognition. Interfacing and controlling of the simple Electricity motor is definitely an interested susceptible to many hobbyists and engineers, most of them used Electricity motor to maneuver mechanical part, automated task, or for entertainment and learning. Within this project work, these motors are utilized to drive the automobile in most directions as well

as control water sprinkler for fire fighting. Electricity motors are a fascinating subject, any engineer or hobbyist who would like to create any robot or machine, these motors are crucial to operate the mechanism, however, we ought to know some fundamental concepts about these motors, the particulars are supplied inside a separate chapter. The best utilization of ARM controller would be to acquire data from Bluetooth module and based on that it's the primary purpose of the controller to manage Electricity motors. Initially the procedure starts in the speech instructions given in the mic towards the android module that transmits an electronic code with the Bluetooth [4]. Here the ARM controller is playing big part, hence it may be known as heart from the project work. There through the controller works the Electricity motors while using H-Bridge. Detailed description concerning the working from the project and individual modules is supplied within the further sections. Speech is easily the most used method of communication for individuals. We born using the abilities of speaking learn it easily during our early childhood and mostly talk to one another with speech throughout our way of life. Through the developments of communication technologies within the last era, speech begins to be an essential interface for a lot of systems. Rather than using complex different connects, speech is simpler to talk with computer systems. Within this project, it's targeted to manage a robotic with speech instructions. The robot has the capacity to recognize spoken instructions to maneuver properly. To provide a direction to robot, first the voice command is send towards the ANDROID device/module. The android recognizes the command by speech recognition system. After which android converts the voice command to direction command that predefined and identifiable by robot. Once the robot will get the direction command, it moves based on spoken command.

II. PROPOSED SYSTEM

The machine designed is really a speech realizing system. However, speech recognition has its own weaknesses and nagging problems. Current technologies are a lengthy way from realizing conversational speech. Within this project, it's targeted to manage a robotic with speech instructions. The robot has the capacity to recognize spoken instructions to maneuver properly [5]. To provide a direction to robot, first the voice command is send towards the ANDROID device/module. The android recognizes the command by speech recognition system. After which android converts the voice command to direction command that predefined and identifiable by robot. Once the robot will get the direction command, it moves based on spoken command. The running description from the project work

"Android Bluetooth based controlled Fire Fighting Robot" is described within this chapter. For much better understanding total project jobs are split into various sections and every section circuit description is supplied within this chapter. This human-machine interface (HMI) could be accomplished using voice recognition modules [6]. Within this project, we'll describe concerning the voice recognition modules with their working procedure and programs. A robotic almost always is an electro-mechanical machine that's led by remote and electronic programming. Many robots happen to be designed for manufacturing purpose and are available in industrial facilities all over the world. Here I am developing the remote buttons/voice instructions within the android application through which we are able to control the robot motion together by which we use Bluetooth communication to interface ARM controller and android. Controller could be interfaced towards the Bluetooth module though UART protocol. Based on instructions caused by android mobile, the robot motion could be controlled. The consistent creation of a automatic system together with quality and repeatability are unmatched. Pick and put robots could be reprogrammable and tooling could be interchanged to maintain multiple programs. Within the work the robot movement is controlled in most directions i.e., forward, backward, left and right along with the water sprinkler can also be controlled for fire fighting. This project is really a fine mixture of Android mobile technology and embedded system. A credit card application ought to be placed on android mobile handset to manage the robot. User can send instructions by using their application. Wireless controlling technique utilized in this project is Bluetooth technology [7]. This project includes a Bluetooth receiver. This Bluetooth system is attached to the circuit with a decoder. This decoder transmits code for particular command sent by user. Then your Electricity motors from the vehicle are controlled through the controller to maneuver within the preferred direction with respect to the command given. The Bluetooth wireless technologies are set to transform the way in which people see digital products within our homes and office atmosphere. This wireless technologies are especially helpful in a nutshell rage wireless communication, high is available almost no infrastructure. Operating over unlicensed, globally available frequency of two.4 GHz, it may link digital products within a variety of 10 m (approximately). This project work includes two primary modules: the android cell phone and also the Adriano BT board (Bluetooth module). The android cell phone includes several Bluetooth apps which allow the consumer to gain access to the control instructions for that robot. Within this project we're targeting Android

platform because it has huge market and free. The Android SDK offers the tools and APIs essential to begin developing programs around the Android platform while using Java programming language. Accessory mode is really a feature of Android Operating System since version 5.3.4 Gingerbread and three.1 Honeycomb and above. The controller functions accordingly around the Electricity motor from the robot. The robot within the project can be created to maneuver in most the 4 directions while using android phone. In experiencing this task the controller is packed with program written using Embedded 'C' or set up Language. The Bluetooth module accumulates the packets sent in the android device/module. Subsequently, these packets that contain the applying status instructions are pipelined with the microcontroller and also the designed analogue circuitry based on the meaning of each output. The Electricity motors are attached to the digital output ports from the controller via H - Bridge to supply sufficiently high power and current compatibility. Within this project we present overview of current robots controlled by cell phone and discuss a closed loop control systems using audio channels of mobile products, for example phones and tablet computer systems. Within our work, slowly move the robot forward, backward, right and left side through the android application additionally to manipulating the water sprinkler for fire fighting. A typical smaller sized dimensions are 16×2, which dimensions are easily available as surplus stock for hobbyist and prototyping work. Character LCDs come with or without backlights, which can be brought, fluorescent, or electroluminescent. The ARM7 processor is really a 32-bit RISC processor, meaning it's built while using reduced instruction set computer (RISC) instruction set architecture (ISA). ARM processors are microprocessors and therefore are broadly utilized in most of the cell phones offered every year, as much as 98% of cell phones. They're also utilized in personal digital assistants (PDA), digital media and music layers, hands-held gaming systems, hand calculators, as well as computer hard disk drives too. Which means this project was created while using ARM processor. The mechanical system is recognized as motion ripper tools; this is often produced by applying electro-mechanical techniques [8]. The idea would be to transform the motion in one form with a other needed form by utilizing appropriate mechanical and electrical products. Within this project work the method of transform the rotational motion into straight line motion is implemented. For this function Electricity motors are utilized to produce the motion for that sprinkler mechanism for movement in vertical direction i.e., up and lower. These motors are built with reduction gear mechanism that is built-in using the motor internally. Because the machine was created as

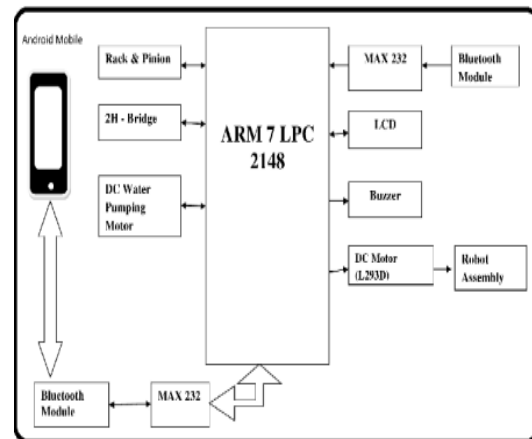prototype module, low rating motors are utilized to drive the mechanism.

Fig.1.Block diagram of proposed system

III. CONCLUSION

This project entitled as "Android Bluetooth Base Control Fire Fighting Robot" was created and developed effectively. For that demonstration purpose a prototype module is built for live demonstration, answers are discovered to be acceptable. As it is a demo module a toy type machine is built with less cost. While creating and developing this proto type module, we've consulted couple of expert's individuals who're understand in a variety of fields, these professionals working at different organizations goes to Hyderabad assisted us while fabricating the robot. As it is a prototype module, much amount isn't invested, the entire machine is built with in your area available components, particularly the mechanical components utilized in this project work are acquired from mechanical fabricators, and they're less than the necessity, large amount of modifications should be transported in design and it is essential to really make it just as real working system. Hence, the module will be enhanced further for acquiring better results. This project says creating a relatively inexpensive, high precision fire fighting robot that is targeted to manage through android mobile (remote). The thought of controlling through remote would be to boost the operator safety. The end result from the thesis is a straightforward robot that is controlled with a wise android phone & also has got the voice instructions. This thesis aims to supply simple recommendations for individuals thinking about building robots. As pointed out earlier, the work continues to be transported out several occasions and also the goal of the thesis would be to familiarize the scholars with basic principles of Adriano and Android to construct anything possible.

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