ROBOT CONTROLLED BY VOICE USING MOBILE PHONE

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Abstract: -

This paper includes that how a robot works with the input given in voice. this paper explains that how a robot interface with user with voice command given by the user. This system is quite fast. this system consists three parts first one is voice recognition system second one is central controller system and third one is robot.

The voice recognition system is a basically an interface between man and robot it receives the voice as input signal and processes it and then forwarded to central controller then it passes the signal to Robot. The paper will describe how the whole process it happens.

In this system the human work will become quite easy to give commanding signal because there is no use of hands or any other part come into existence. In this system the robot will be quite familiar with humans.

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INTRODUCTION:

Robot controlled by voice using mobile phone is a very effective project especially for physically challenged peoples. It is also very useful in industries and at those places where human life is endangered.

The Technology advancement in the speech recognition over the past few years results in research-oriented activities based operating the equipment based on user voice commands. Some design implementation results in operating the home appliances based on voice command, some design implementation results in navigation of physically challenged to their destination based on their voice commands, design implementation of robots and forklift navigation based on voice command, endanger. It gives exact concept of controlling a robot by voice. Robot is capable of understanding and synthesizing human speech for communication. A voice recognition unit built around a high-speed processor that ensures various function of the system to be performed by voice command. A few of

Instructions recommended for operation are listed as: START, STOP, FORWARD, BACKWARD, RIGHT, LEFT, SLOW, FAST, OK, UP, DOWN, CLOCK, ANTICLOCK, CLOSE, OPEN.

To work with this system, we have to design some application of android. The application consists of android phone with Bluetooth receiver.

In the model, an android application for voice recognition is developed. This application converts the voice command to text and sends it to the robot via Bluetooth. The

robot receives the voice and compares it with the programmed commands in the microcontroller and executes the directed action. This process is shown in the block diagram.

Function of Android:

As it is mentioned that to control a robot through mobile phone it is obvious that we have to make android application, now it is to be studied that the function of android application. We use android application for voice recognition, once voice is recognized the user can be able to control the robot as per desired command. The voice command is going to be converted into text it is described in block diagram below.

Controlling of robot:

In this system the robot is controlled by arduino board containing the ATmega328 microcontroller. The text sent to microcontroller from mobile phone and it will be compared with preprogrammed command such as left, right, up, down etc. The microcontroller gives the commanding signal to both the wheels through motor driver when user gives command left then it stops the left wheel and right wheel will move then robot moves in right direction same as when we have to move robot in right direction then right wheel will be stop and left wheel will move then robot will turn right, when we have move it sharp turn then one wheel move in clockwise direction and another wheel will move in anticlockwise direction then robot will take sharp turn.

Flow chart of arduino program:

Arduino Board:

Arduino board is basically a single board microcontroller, intended to make the application of interactive objects or environments more accessible. The hardware consists of an open- source hardware board designed around an 8- bit ATMEL AVR microcontroller, or a 32_-bit ATMEL ARM. Current models feature a USB interface, 6 analog input pins, as well as 14 digital i/o pins which allows the user to attach various extension boards.

Microcontroller:

A microcontroller is a small computer on a single integrated circuit containing a processor core, memory, and programmable I/O peripherals. Program memory in the form of nor flash or OTP ROM is also obtain included on chip, as well as a typically small amount of RAM.

In system Atmega328 microcontroller is used. The ATmel 8 bit AVR RISC-based microcontroller combines 32 kb ISP FLASH memory with read-while-write capabilities, 1kb EEPROM, 2 kb SRAM, 23 general purpose I/O lines, 32 genral purpose registers, 3 flexible timers/counters. The pin digram is given below:-

Bluetooth:

A Bluetooth module is a hardware component that provides a wireless product to work with the computer; or in some cases, the Bluetooth may be an accessory or peripheral, or a wireless headphone or other product (such as cell phones can use.) In simple words a Bluetooth module is a chip through which wireless Bluetooth communication can be established between two devices. The Pin diagram is depicted below:

L293D Motor driver:

This motor driver is a driver IC that can drive two motors simultaneously. L293D IC is actual H – bridges capable to drive a dc motor in bi-directional. L293D IC is a current enhancing IC as output from the sensor is not able to drive motors itself so L293D is used for this purpose . It is a 16 pin IC having two enables pins which should always be remain high to enable both the H- bridges. The pin diagram is given below:

Results:

The working model was tested on Arduino. The function of robot is fully controlled by the voice of mobile. the robot will follow all the instructions.

Conclusion &future work:

The paper is very useful for the future work in voice controlled robot is successfully designed on arduino . The number of areas in which voice control robot will be useful like in war, for the dense areas etc. This can be also useful for the person who is physically challenged and also useful for marketing also.

References:

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