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BOT car-based on IOT

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ABSTRACT

Voice controlled robotic system is extremely useful in areas wherever there's high risk for humans to enter. Voice controlled robotic system is controlled through voice commands received via mechanical man device. the mixing of management unit with Bluetooth device is achieved employing a Bluetooth module to capture and skim the voice commands. The robotic vehicle operates as per the command received via mechanical man device, for this Adriano is integrated within the system. The dominant device is also associate good phone having an mechanical man OS. The transmitter uses associate mechanical man application needed for transmission the information. The receiver finish reads these commands and interprets them into dominant the robotic vehicle. The mechanical man device sends commands to maneuver the vehicle in forward, backward, right and left directions. Once receiving the commands, Adriano operates the motors so as to maneuver the vehicle in four directions. The communication between mechanical man device and receiver is shipped as serial communication information. Adriano program is meant to maneuver the motor through a motor driver circuit as per the commands sent by mechanical man device. The wireless camera is interfaced with Adriano to record forward movement of the robotic system that conjointly includes wireless vision camera which can not solely enable viewing no matter are recorded in day time however conjointly throughout night. A robotic arm is mounted at the front of the system to form changes within the surroundings at the side of a digital display screen to look at the received commands. Associate obstacle detector is adscititious to guard the system from obstacles on the approach by victimization associate inaudible detector.

Keywords*:* Adriano, HC-05(Bluetooth Module), L298 (Dual H-bridge Motor Controller), DC Motor.

INTRODUCTION

Nowadays smart phones have become additional powerful with bolstered processors, larger storage capacities, richer recreation perform and additional communication ways. Bluetooth is especially used for knowledge exchange; add new options to good phones. Bluetooth technology, created by telecommunication seller Ericsson in 1994, shows its advantage by desegregation with good phones. it's modified however individuals use digital device reception or workplace, and has transferred ancient wired digital devices into wireless devices. a bunch Bluetooth device is capable of communicating with up to seven Bluetooth modules at same time through one link. Considering its traditional operating space of among eight meters, it's particularly helpful in home setting. give thanks for Bluetooth technology and different similar techniques, with dramatic increase in Smartphone users, good phones have bit by bit become associate degree general transportable device and provided individuals for his or her daily use . In recent years, associate degree ASCII text file platform .Android has been wide utilized in good phones. Mechanical man has complete package. package consisting of associate degree software package, middleware layer and core applications. Completely different from different existing platform like iOS (iPhone OS), it comes with

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packaged development kit (SDK), that provides essential tools and Application. Employing a Smartphone because the"brain" of a mechanism is already a full of life analysis field with many open opportunities and promising prospects. during this paper we have a tendency to gift a review of current robots controlled by transportable and discuss a closed-loop system. system mistreatment audio channels of mobile devices, like phones and pill computers. In our work, move the mechanism upward, backward, left and right aspect by the mechanical man application like Bluetooth Terminal.

PROPOSED SYSTEM

The purpose of our research is to provide simpler robot's hardware architecture but with powerful computational platforms so that robot's designer can focus on their research and tests instead of Bluetooth connection infrastructure. This simple architecture is also useful for educational robotics, because students can build their own robots with low cost and use them as platform for experiments in several courses.

Common control architectures: The following list shows typical robot control architecture:

Adriano

Adriano is an open-source computer hardware and software company, project and user community that designs and manufactures microcontroller-based kits for building digital devices and interactive objects that can sense and control objects in the physical world. Adriano had used the Atmel Atmega AVR series of chips, specifically the ATmega8, ATmega168, ATmega328, ATmega1280, and ATmega2560.

HC-05

A HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Blue core 04-External single chip Bluetooth system with CMOS technology and with AFH (Adaptive Frequency Hopping Feature).It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

BLOCK DIAGRAM

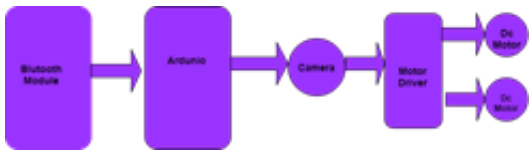

Fig.1 Block Diagram of the Project *C. Android Phone*

In this project we will control the robot using Android Phone by using an application which we will get from Android Play store. By installing the application we can move the robot in four direction i.e., is front, reverse, left and right directions

Bluetooth Receiver

Bluetooth Receiver consists of Bluetooth serial interface module and Bluetooth adapter. Bluetooth serial module is used for converting serial port to Bluetooth. This module has two modes: master and slaver device. The device named after even number is defined to be master or slaver when out of factory and can't change to the other mode. But for the device named after odd number, users can set the work mode (master or slaver) of the device by AT commands

Adriano UNO

The Adriano Uno is a 8 bit microcontroller board based on the ATmega328.It has 14 digital pins and 6 analog pins and other power pins such as, GND, VCC, It has 14 digital input/output pins (of which 6can be used as PWM outputs), 6 analog

inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It has SRAM 2kb and flash memory 32kb. EEPROM with 1KB. Adriano is open source hardware board with many open source libraries to interface it on board microcontroller with many other external components like LED, motors, IR sensors and many other things one want to interface with Adriano board. Adriano is a complete board which include all things to connect with external peripheral and to program through computer. It contains everything needed to support the microcontroller. We either need to connect it to a computer using a USB cable or power it with an AC-to-DC (7-12v) adapter. The Adriano circuit acts as an interface between the software part and the hardware part of the project .

L298

The L298 is an integrated monolithic circuit in a 15lead Multiwatt and PowerSO20 packages. It is a high voltage, high current dual full-bridge driver designed to accept standard TTL logic levels and drive inductive loads such as relays, solenoids, DC and stepping motors. Two enable inputs are provided to enable or disable the device

The emitters of the lower transistors of each bridge are connected together and the corresponding external terminal can be used for the connection of an external sensing

DC Motor

Almost every mechanical movement that we see around us is accomplished by an electric motor. Electric machines are means of converting energy. Motors take electrical energy and produce mechanical energy. Electric motor is used to power hundreds of devices we use in everyday life. An example of small motor applications includes motors used in automobiles, robot, hand power tools and food blenders. Micro-machines are electric machines with parts the size of red blood cells and find many applications in medicine.

SOFTWARE DESCRIPTION

The good microcontroller unit named as Adriano Uno may be programmed with the Adriano software package there in no any demand for putting in alternative software package instead of Adriano. Firstly, choose Adriano Uno from the Tools, Board menu (according to the microcontroller on your board).The IC used named as ATmega328 on the Adriano Uno comes pre burned with a boot loader that permits you to transfer new code thereto while not the utilization of Associate in Nursing external hardware computer programmer. Communication is exploitation the initial STK500 protocol (reference, C header files).We can additionally bypass the boot loader and programs the microcontroller through the ICSP (In Circuit Serial Programming) header. The ATmega16U2 (or 8U2 within the rev1 and rev2 boards) microcode ASCII text file is out there. The ATmega16U2/8U2 is loaded with a DFU boot loader, which may be activated by:

On Rev1 boards: connecting the solder jumper on the rear of the board (near the map of Italy) and so resetting the 8U2. On Rev2 or later boards: there's a resistance that actuation the 8U2/16U2 HWB line to ground, creating it easier to place into DFU mode. The Adriano Uno is one among the newest good microcontroller unit and includes a range of facilities for human activity with a pc, another Adriano, or alternative microcontrollers. The ATmega328 provides UART TTL at (5V) with serial communication, that is out there on digital pins zero - -(RX) for receive the info and pin no.1 (TX) for transmit the info. Associate in Nursing ATmega16U2 on the board channels this serial communication over USB and seems as a virtual com port to software package on the pc. The '16U2 microcode uses the quality.

USB COM drivers, and no external driver is required. However, on Windows, an .inf file is needed. The Adriano software package includes a serial monitor that permits easy matter information to be sent to and from the Adriano board. The RX and TX LEDs on the board can flash once information is being transmitted via the USB-to-serial chip and USB association to the pc (but not for serial communication on pins zero and 1). A software package Serial library permits for serial communication on any of the Uno's digital pins. The ATmega328 additionally supports I2C (TWI) and SPI communication. The Adriano software package includes a Wire library to alter use of the

I2C bus. Adriano programs area unit written in C or C++ and also the program code written for Adriano is termed sketch. The Adriano IDE uses the antelope tool chain and AVR Libc to compile programs, and for uploading the programs it uses avrdude. because the Adriano platform uses Atmel microcontrollers, Atmel's development atmosphere, AVR Studio or the newer Atmel Studio, may additionally be wont to develop software package for the Adriano.

CIRCUIT DIAGRAM

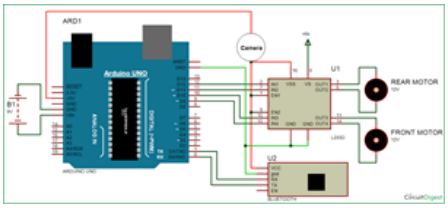

Fig.2 Circuit Diagram of the Project

Circuit Description

Here in this robot we have used a Bluetooth module which controls the robot via 2 DC High Torque motors at 10,000 RPM approx. The robot is control by an android phone application. Microcontroller used here is Adriano UNO R3 from microcontroller family which contributes in a serial communication UART mode and the communication is governed on 9800bps to communicate it with the Bluetooth module.

CONCLUSION

The Wireless management is one among the foremost necessary basic desires for all the individuals everywhere the planet. However sadly the technology isn't totally used thanks to an enormous quantity of information and communication overheads. Generally, several of the wireless-controlled robots use RF modules. However our project for robotic management makes use of automaton portable that is extremely low cost and simply out there. The out there management commands area unit over RF modules. For this purpose the android mobile user has to install a designed application on her/his mobile. Then he/she needs to turn on the Bluetooth in their mobile. The wireless communication techniques used to control the robot is nothing than Bluetooth technology. User can use several commands like move reverse, forward, move left, move right using these commands which are given from the Android mobile. Robot has a Bluetooth receiver unit that receives the commands and move left, move right using these commands which are given from the Android mobile and send it to the Adriano circuit to control the motors. The Adriano UNO then transfers the signal to the motor driver IC's to operate the motors.

Acknowledgment

After finishing the project we have a tendency to return to understand that there are several uses of the Adriano UNO R3. Adriano will simply take the input from the important world and turn out the output in line with it and it will management virtually something and therefore the information is ever increasing so are the issues that the man attempt to unravel. during this spirit, it's hoped that the present activity can result in additional enhancements. For example; work on future for military purpose by the mechanism

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