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Military Medibot

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Military and piece of ground areas that primarily need the progressive technologies that may offer sensible service in varied aspects, and robotic systems are one in all the key solutions for such necessities. Time may be a important issue once handling troopers United Nations agency expertise a unforeseen medical service that sadly may lead to death because of unavailability of the emergency treatment. Therefore, an on the spot treatment exploitation remote emergency medi-kit in military areas should be administered to the victim at intervals some minutes when collapsing wherever doctors couldn't offer service. Hence, we've designed and developed the medi-kit providing automaton, that brings on associate degree during a unforeseen event of medical service and facilitates varied modes of operation from manual to voice steering functioning to save lots of someone's lives in military areas. The humps and potholes over the manner are detected and controlled by the larva remotely. The voice steering are transmitted exploitation RF signals once necessary.

I. INTRODUCTION

The thought of hi-tech machines which will serve the folks well or relieve humans of wearisome chores has been associate degree object of human imagination. It may be seen with several of today's occupations are replaced by automation so as to assist stop manual handling injuries within the work. automaton is associate degree autonomous or semiautonomous machine that's capable to maneuver around in their surroundings and can also perform numerous tasks either with direct or partial management by human superintendence or utterly autonomous. With victimization multiple sensors for navigation, this automaton is ready to navigate from some extent to a given destination while not losing the right path or hit obstacles. There are a unit numerous detector sorts used for autonomous navigation in mobile like vision and vary sensors. They need terribly short time to seek out the victims in any bad luck situation; otherwise the chance of finding the victims still alive is almost zero. In such an important state of affairs, technology may even be accustomed support rescuers in varied tasks. Intelligent mobile robots And cooperative multi- agent robotic systems unit of menstruation tons of associated getting used in many different ways in which during which to hunt out and save the victims in an passing quicker and tons of economical manner. The automaton that is ready to try and do such tasks is accepted as rescue automaton. During this study, we've a bent to developed a system that collects video data through a contemporary designed device mounted on a vehicle and some way that discover potholes. During this Project the unbearable detector is employed to seek out the hole and Humps within the roads. This unbearable detector emits the pulses at regular interval of time; the receiver listens to the echo, and round-off time into the perform of height. The Receiver detects the abrupt changes within the parcel, by comparison the round-off time. As default the character of the parcel needs to be determined before. therefore once the hole is detected by the system it correspondingly send the intimation to the Road maintenance Authority, therefore this might decrease the dear time for them to find the Pothole's within the roads.

II. LITERATURE SURVEY

Potholes Detection is that the intriguing topic of analysis and researchers are functioning on identical to detect it mechanically with several techniques they need already developed the detection of Potholes and Humps using numerous techniques like IR device. We have tried one factor utterly totally different i.e. exploitation the camera with Raspberry Pi so as that the tactic is simple and fast as at a similar time we've a bent to ar exploitation government developed automaton application for inflicting the captures photos of potholes and humps on the server so as that necessary actions area unit aiming to be taken as rapidly as possible.

Radio management automobile exploitation RF module may be a tool or machine which will follow a such as path. The chip is preprogrammed and embedded inside the automaton. one in every of the basic issues with microcontroller-based styles is that the acceptance of commands from the user in real time from outside world. The second downside with LFR is wired connections, and therefore the length of wire is that the most constraint. because the length of a wire will increase, the signal strength attenuates and together with signal strength attenuation delay in timings conjointly will increase to beat these problems, RF is utilized as a result of

it provides a convenient approach of causation signals whereas not conductors and thus eliminating the attenuation and time delay. This approach solves the matter of dominant LFR with the abcititious practicality of command mode. The command mode LFR is controlled exploitation pc based totally directions developed in C-programming language. Some work supported oftenest Identification (RFID) systems was reported in (Finke zeller, 2003; semiconductor little or no Guide). In these systems RFID tang is connected to receive and send information to and Journal of Advanced subject field and Technology analysis one (2011) 25-35from a remote-control device.

The Strength of those RFID systems is that they will overcome line of sight drawback also as line loss and limitations, thus far RF primarily based line following robots ar engineered as given in (Willem, 2011). however they're not enforced to be controlled via computer. The proposed model RF primarily based LFR has been build and it's controlled with notebook computer (PC).

III.BLOCK DIAGRAM AND DESCRIPTION

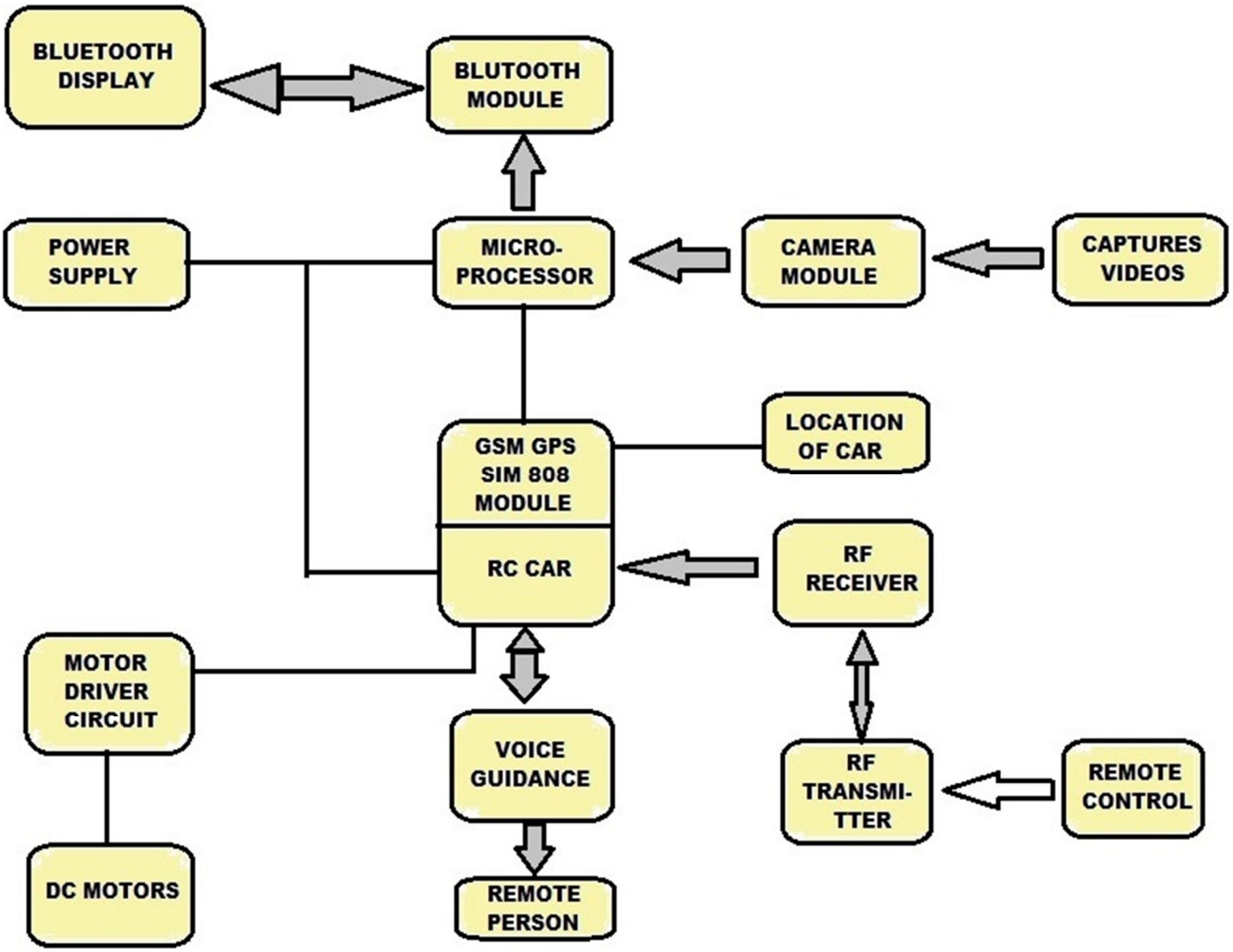

Fig. 1 Block diagram

A. Sim808 GSM GPS Module

We are using SIM808 GPS GSM module to track the location of the RC car. It will send the location of the RC car to the remote control user as soon as the remote control person sends a track message on the registered number SIM present on the SIM808 chip.SIM808 is an all in one module with GSM ,GPRS, GPS & BLUETOOTH.SIM808 is advanced compared to SIM908. In this post we explore how to parse GPS data (without using TNYGPS library) & send it through inbuilt GSM. SIM 808 has 2 antenna sockets one for GSM & other for GPS. A stub antenna is used for GSM & a magnetic external patch antenna is used for GPS. Do not interchange these 2 antennae. The antenna socket nearest to SIM808 chip is for GPS. Connection between Arduino UNO & SIM808 is simple.

B. Gnd to Gnd
Tx of SIM808 to Rx of Arduino (soft serial digital pin 7)
Rx of SIM808 to Tx of Arduino (soft serial digital pin 8)
A separate power adapter of 12v 2amp is required for SIM808 board.
Insert valid SIM on to the slot at the back of SIM808 board
Power on & notice the NETWORK LED .It blinks fast initially & when it gets network it blinks, once per second which is very slow.

C. Arduino
Arduino Uno may well be a microcontroller board supported the ATmega328P. it's fourteen digital input/output pins (of that vi are going to be used as PWM outputs), vi analog inputs, a sixteen megacycle quartz, a USB association.
Simply connect it to a transportable laptop with a USB cable or power it with a AC-to-DC adapter or battery to urge started, you may tinker along with your UNO whereas not worring AN excessive quantity of relating to doing one issue wrong, worst case state of affairs you may replace the chip for a few usd and start all over again.

D. Power Supply
In this project circuits, sensors & motor are used which require +12V & +9V(DC)supply, to fulfill this requirement we have used following circuit of power supply which provides regulated+12V & +9V.(DC).

E. Arduino Board
Arduino Uno could be a microcontroller board supported the ATmega328P. it's fourteen digital input/output pins (of that vi will be used as PWM outputs), vi analog inputs, a sixteen megahertz quartz, a USB association, an influence jack, associate degree ICSP header and a push button. It contains everything required to support the microcontroller; merely connect it to a laptop with a USB cable or power it with a AC-to-DC adapter or battery to urge started.. you'll tinker together with your UNO while not worring an excessive amount of regarding doing one thing wrong, worst case situation you'll replace the chip for some bucks and begin another time. "Uno" means one in Italian and was chosen to mark the discharge of Arduino package (IDE) 1.0. The Uno board and version one.0 of Arduino package (IDE) were the reference versions of Arduino, currently evolved to newer releases. The Uno board is that the initial in a very series of USB Arduino boards, and also the reference model for the Arduino platform; for an intensive list of current, past or noncurrent boards see the Arduino index of boards.

F. GPS Receiver
Global Positioning System (GPS) could be a satellite navigation system and is employed to capture geographic location and time, regardless of the climatic conditions. it's maintained by the U.S. Government and is freely accessible to anyone WHO encompasses a GPS receiver. It obtains the GPS data from satellites in National Marine natural philosophy Association (NMEA) format. The NMEA has outlined a customary format for the GPS data. this can be followed by all the satellites. the quality defines numerous codes like registered mobile SIM mistreatment GSM electronic equipment. This registered mobile SIM is gift on the mechanical man device that acts as server. The messages sent embrace data concerning depth of the hollow or height of the hump and its location coordinates.

G. GSM
GSM/GPRS module is utilized to determine communication between a laptop and a GSM-GPRS system. Global System for Mobile communication is honour vogue used for mobile communication in an exceedingly heap of nations. International Packet Radio Service (GPRS) is AN extension of GSM that allows higher knowledge transmission rate. GSM/GPRS module consists of a GSM/GPRS electronic equipment assembled alongside power offer circuit and communication interfaces (like RS-232, USB, etc) for pc. The equipment is that the soul of such modules. GSM/GPRS equipment can be a class of wireless equipment devices that area unit designed for communication of a laptop with the GSM and GPRS network. It needs a SIM (Subscriber Identity Module) card a bit like mobile phones to activate communication with the network..To boot they have IMEI (International Mobile instrumentation Identity) vary constant as mobile phones for his or her identification. Again "Uno" means that one in Italian and was chosen to mark the discharge of Arduino software system (IDE) 1.0.

H. DC Motors

In the RC car, we have used four DC motors of 100 rpm and 2 Nm torque which are used to drive the RC car. Power requirement for these motors is 12V DC supply. These motors are connected to motor driver IC L298N.

I. Motor Driver

The motor driver utilized in the RC receiver circuit is L298N. The L298N motor controller follows the H-bridge configuration, that is handy once dominant the direction of rotation of a DC motor. The L298N is Associate in Nursing integrated monolithic circuit throughout a 15- lead Multi watt and Power thus twenty packages. It is a high voltage , high current twin full-bridge driver designed to only settle for traditional TTL logic level sand drive inductive plenty like relays, solenoids, DC and stepping motors. Two modification inputs are provided to vary or disable the device severally of the in-put signals. The emitters of the lower transistors of each bridge ar connected on rand the corresponding external terminal is also used for the association of associate external sensing electrical device.

J. OV7670 Camera Module

The OV7670/OV7171 CAMERACHIPTM may be a low voltage CMOS image sensing element that has the total practicality of a single-chip VGA camera and image processor during a tiny footprint package. The OV7670/OV7171 provides full-frame, sub-sampled or windowed 8-bit footage throughout a large choice of formats, controlled through the Serial Camera management Bus (SCCB) interface. This multiplication includes an image array capable of operational at up to thirty frames per second in VGA with complete user management over image quality, info and output info transfer. This product has a picture array capable of in operation at up to 30 frames per seconds in VGA with complete user management over image quality, format and output knowledge transfer. All required image method functions, alongside exposure management, gamma, white balance, color saturation, hue management and extra, area unit programmable through the SCCB interface. To boot, OmniVision CAMERACHIPs use proprietary detector technology to reinforce image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as mounted pattern noise , blooming, etc., to supply a clean, absolutely stable color image.

K. HC-06 Bluetooth Module

This Bluetooth module will simply deliver the goods serial wireless knowledge transmission. It adopts Bluetooth a pair 0f 2.0+EDR commonplace. In Bluetooth a pair of 2.0, signal transmit time of various devices stands at a 0.5 seconds interval therefore the employment of Bluetooth chip are going to be reduced significantly and extra sleeping time are going to be saved for Bluetooth. This module is ready with serial interface, that is straightforward to use and simplifies the design/development cycle.

IV. CONCLUSION

The system was developed and tested to serve two necessary functions, first is to produce medical services in warzone and various is to automatic detection of potholes and alerting vehicle drivers to reduce accidents. The projected attractiveness for a financial declares providing medical kit and discovery of awful potholes and uneven mounds, because it uses ease inaudible sensors. The transportable application used as apart of this framework is a further advantage because it provides timely alerts regarding potholes and humps. The mobile application employed in this technique is a further advantage because it provides timely location of the larva further as alerts regarding potholes and humps. The answer conjointly works in time of year once potholes square measure crammed with muddy water as alerts square measure created utilizing the information place away within the info. Future enforced using camera thus we will drive the Medi-bot safely. we will implement Location of potholes and speed breakers alongside their co-ordinates may be detected by victimization vibration-based approach.

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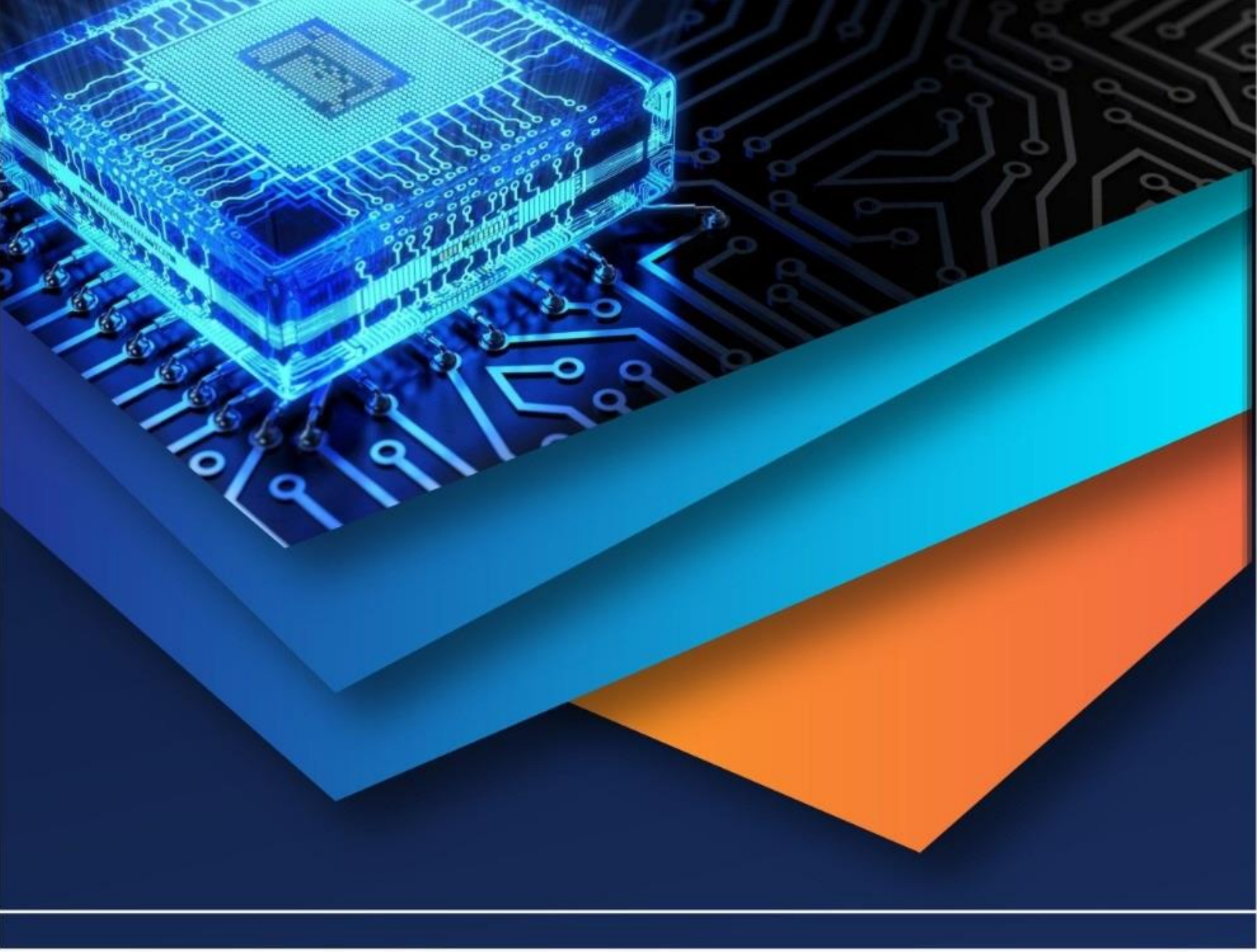

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