International Journal of Advance Research in Science and Engineering
Volume No.06, Issue No. 10, October 2017
www.ijarse.com
IJARSE
ISSN: 2319-8354

"A MULTIPURPOSE ROBOT FOR MILITARY" - TRIBUTE TO THE DEFENCE MINISTRY

Bodapati Kishore Babu [1], G.Bhargavi [2]

H.raghupathi (HOD)[3]

[1]PursuingM. Tech (ES) ,[2]Assistant Professor, [3]Assistant Professor

Visvesvaraya College of Engineering and Technology, Patelguda, Ibrahimpatnam,

Ranga Reddy Dist. Telangana, (India).

ABSTRACT

In emergency especially military and fire departments they have risk lives to go to the place where fire or land mines may be placed. Especially in military applications, they have to very risky zones where they can lose lives due to land mines or to the other people etc. To reduce such kinds of risks we are using this prototype to control wirelessly and the robot is smart enough to detect the land mines or metal in its place and it can also detect any living soul in its path so that military officials can know how many are there inside the zone and is there any land mines placed or not etc. We using the PIR sensor which detects the Infrared Radiation emits from the living organisms and it can also detects the motion in its places. Since PIR sensor is having the long range than the usual we can know that if any person is there before the person sees our robot and the status is send to our system for further purpose. Like this the w Metal detector in the robot to detect any landmines in its places. Whenever the landmines or persons detected which means whenever the sensor detected we are going to switch one buzzer to alert the user. To control the direction of the robot we are using Bluetooth communication which frequency can varies time to time. Whenever the paired connection is established between our module and robot end module there will be no problem of data loss etc. In addition to this since we are using Bluetooth other cannot read the data send by our robot unit.

Keywords*: **Arm7 Board,Bluetooth Module, Lcd, L293D driver IC, Dc Motor, metal sensor, PIR sensor, Buzzer.***

I. INTRODUCTION

In emergency cases particularly military and hearth departments they have risk their lives to visit the region wherein there can be daggered or in some places land mines may be placed. specially in army programs, they must very risky zones where they can lose their lives because of the land mines or to the alternative people etc. to reduce such kinds of risks we're the usage of a multipurpose robotic which can be managed wirelessly and the robotic is wise enough to hit upon the land mines or metallic in its region and it may also detect any living soul in its course in order that navy officers can know how many are there within the quarter and is there any land mines positioned or not and many others.

The usage of the passive infrared sensor which detects the infrared radiation emits from the dwelling organisms and it could also detects the movement in its places. For the reason that pir sensor is having the lengthy variety than the same old we can realize that if any individual is there earlier than the individual sees our robot and the reputation is send to our system for further reason. As in the identical manner we positioned the metal detector inside the robotic to hit upon any landmines in its locations. Every time the landmines or folks detected this means that on every occasion the sensor detected we're going to transfer one buzzer to alert the user. To govern the direction of the robot we're using Bluetooth communique which frequency can varies time to time. On every occasion the paired connection is set up between our module and robot cease module there could be no problem of facts loss and so on. Further to this due to the fact we are the usage of Bluetooth other can't study the statistics send by our robot unit.

II. EXISTING SYSTEM

There's much development inside the subject of engineering, robotics mainly. Many robotic structures had been evolved for numerous purposes. There are sure systems that are used for automatic movement of automobiles in street and wheel chairs that may assist disabled. There also are robotic structures which can be used for defense functions .in addition to those improvements there are also robot systems that can fight in battle instances. This robotic is called "security Warrior" and consists of 5 structures which includes imaginative and prescient, movement; robot fingers, energy estimation and faraway supervise. The imaginative and prescient gadget is used to carry out human detection and tracking. The motion machine is constructed via the use of embedded structures and used to acquire motion planning in actual time.

III. PROPOSE SYSTEM

Here in our existing system there are only remote monitoring for robots are available. Here in our system Robot can be gone to any area which the human have threat to go. It that difficult areas like surveillance, prohibited areas to spy something. In that remote areas it’s the best solution. in this we don’t need any human help more over wee don’t keep a man in risky situation. Here everything wee can monitor from remote sensor using Bluetooth module and if any motion occurred in that remote areas it immediately reacts and sent to the authorized person to react. By metal detector we can identify the land mines and bombs if any one place on the roads.

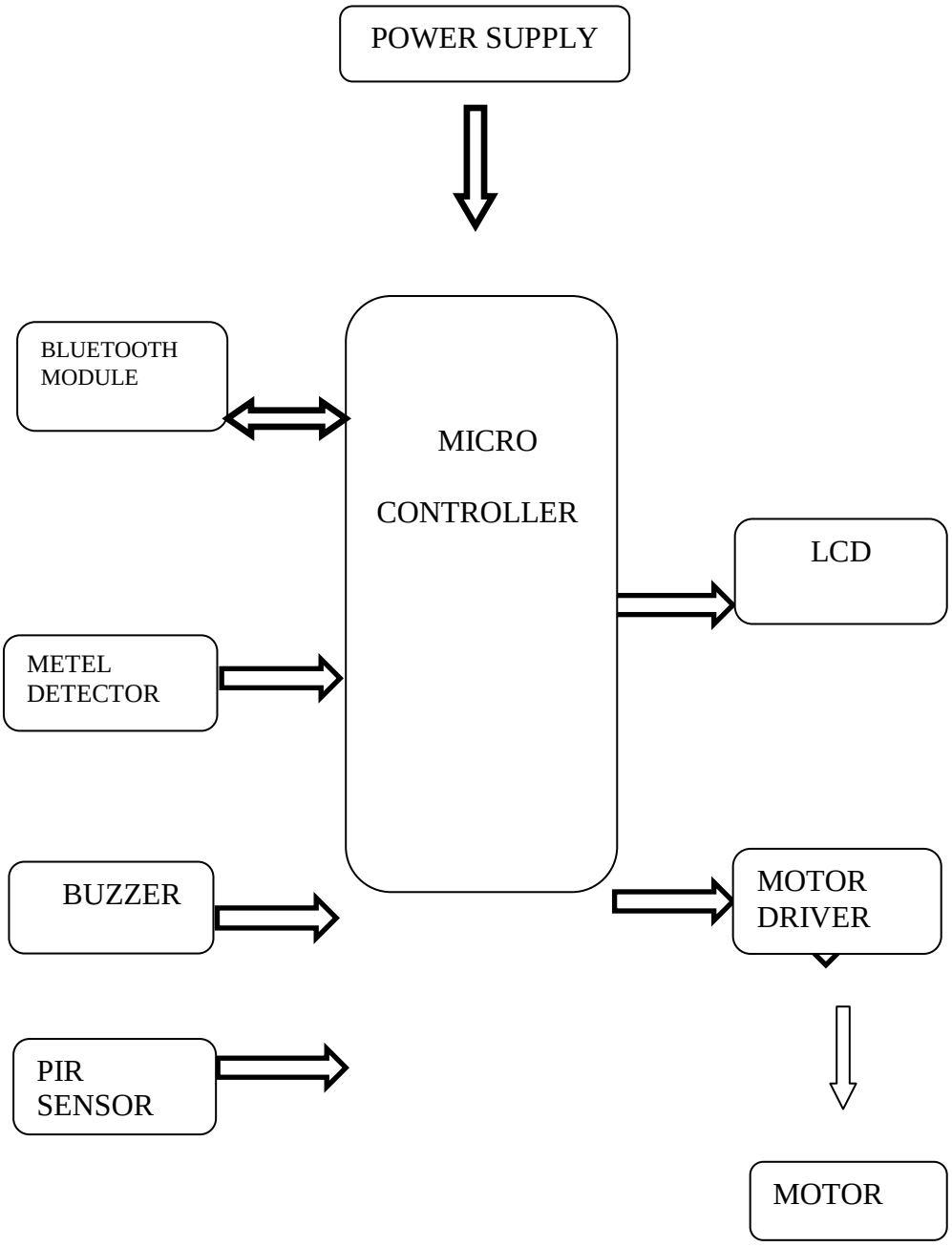


Fig : BLOCK DIAGRAM.

IV.HARDWARE REQUPIREMENTS

LPC2148 Microcontroller

The ARM7 (advanced RISC gadget) pressers board primarily based complete on a 16/32-bit ARM7 its method of sixteen/32-bit ARM7 TDMI-S microcontroller, 8 computer reminiscence unit to forty pc reminiscence unit of on-chip static RAM and 32 laptop memory unit to 512computer reminiscence unit on-chip flash memory; 128-bit In- gadget Programming (ISP). 32-bit timers/out of doors occasion counters, PWM pulse width

modulation unit (six outputs) and watchdog, Low electricity of actual-Time Clock (RTC), a couple of serial interfaces which has 2 UARTs , fast I2C-bus (400kbit/. There are sixty 4 pins of ARM7 processer and a couple of ports (port0, port1) forty five pins are enter/output.

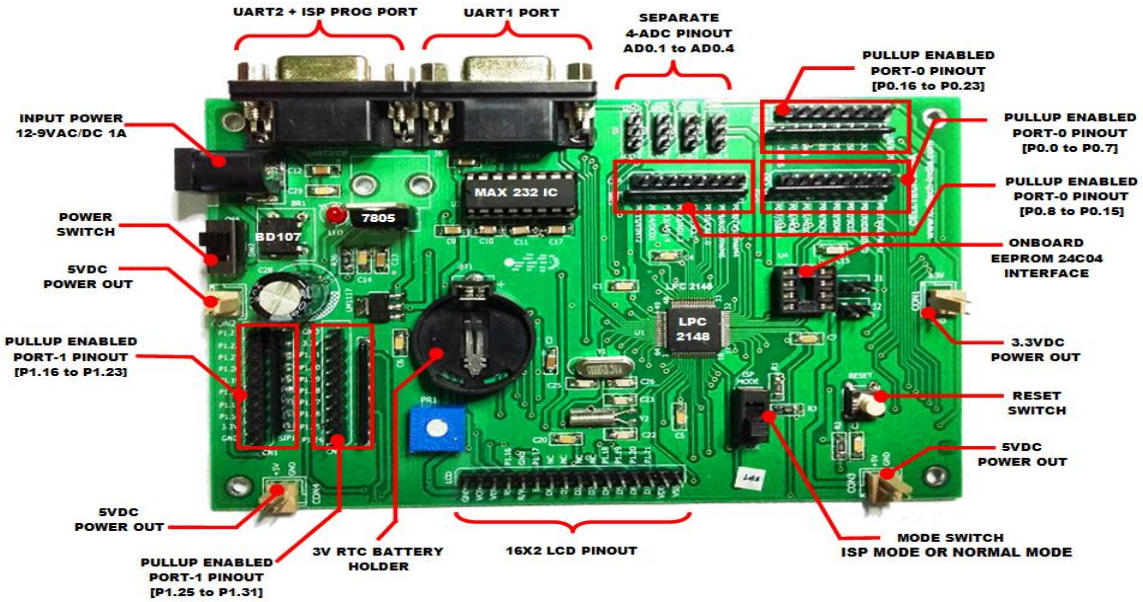


Fig2:-LPC2148 board

BLUETOOTH Module

Bluetooth could be a wireless protocol utilizing short-range engineering facilitating information transmission over short distances from mounted and/or mobile devices, making wireless personal space networks (PANs). Its main aim is to overcome the synchronization problem which in connecting of two devices. Bluetooth uses a really sturdy radio technology known as frequency hopping unfold spectrum. It chops up the info being sent and transmits chunks of it on up to seventy five totally different frequencies. Here we need to pair with the module to establish a connection between two devices by entering a security password. Why password, its to avoid others to communicate. Its compatible in the range of 10-15 meters and the speed of the data is in Mbps. By using this we cant loss the data in middle.

Fig 3: Bluetoothmodule

Passive Infrared Sensor

This PIR Sensor Switch Can Detect the Infrared Rays launched with the useful resource of Human Body Motion within the Detection Area. This Unit is Suitable for Outdoor Use (Corridor, Staircase), A PIR Sensor is a Passive Infrared Sensor which controls the switching on/off of the lights load when it detects a moving target.The constructed in sensor activates/off the related lighting load when it detects motion inside the insurance region.

Fig 3: PIR SENSOR

Metal Detector Sensor

device that detects the presence of metal shut. Metal detectors unit useful for locating metal inclusions hidden among objects, or metal objects buried underground. They usually comprehend a hand-held unit with a device probe which can be sweptwing over rock bottom or various objects. If the device comes near a trifle of metal this is often indicated by a changing tone in earphones, or a needle moving on Associate in nursing indicator. Usually the device offers some indication of distance; the nearer the metal is, the higher the tone inside the electro-acoustic transducer or the higher the needle goes.

L293D

The L293D is a quadruple high-contemporary half-H drivers, it also called as line driver circuit. The L293d is designed to offer bidirectional power currents of up to at least one A at voltages from 4.Five V to 36 V. The motive force carries definitely sixteen pins, in that four pins for enter and four pins for output. The output pins are linked to the vehicles and input pins are takes from the controller and l293d incorporates energy supply pins and two ground pins. The foremost use of the l293d IC is in addition up the voltage stages to run the D.C motor. Here we are taking the four enter pins and four output pins, the D.C motor calls for simplest pins so we will run two cars at a time by the use of the l293d driver IC.

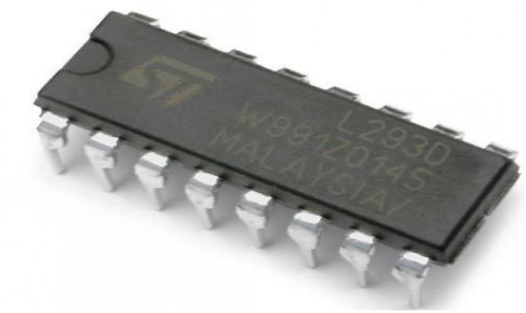


Fig :L293D driver IC.

DC MOTORS

Motors are electro mechanical gadgets which are used for to transform the electrical alerts into mechanical indicators. The all D.C cars are having identical internal mechanism, both electromechanically to exchange the direction of modern-day glide in a part of the motor. In venture we're used for to transport the motor in unique course. We need to connect the motor to controller thru driving force IC handiest.

Fig5: DC motor

V. SOFTWARE DESIGN

In proposed system we used below tools for programming and simulation purpose,

1.Keil4 Vision

2.Flash Magic

The Keil4 vision is an IDE which is used for software programming. In this IDE,we have to select the controller which we need to program .This tool is implemented by c language. We can debug the program, can error check and used to create an HEX file in this software. By the use of hex report we have a tendency to products the code into microcontroller and carry out utility. Flash magic is used to dump the program in the controller.

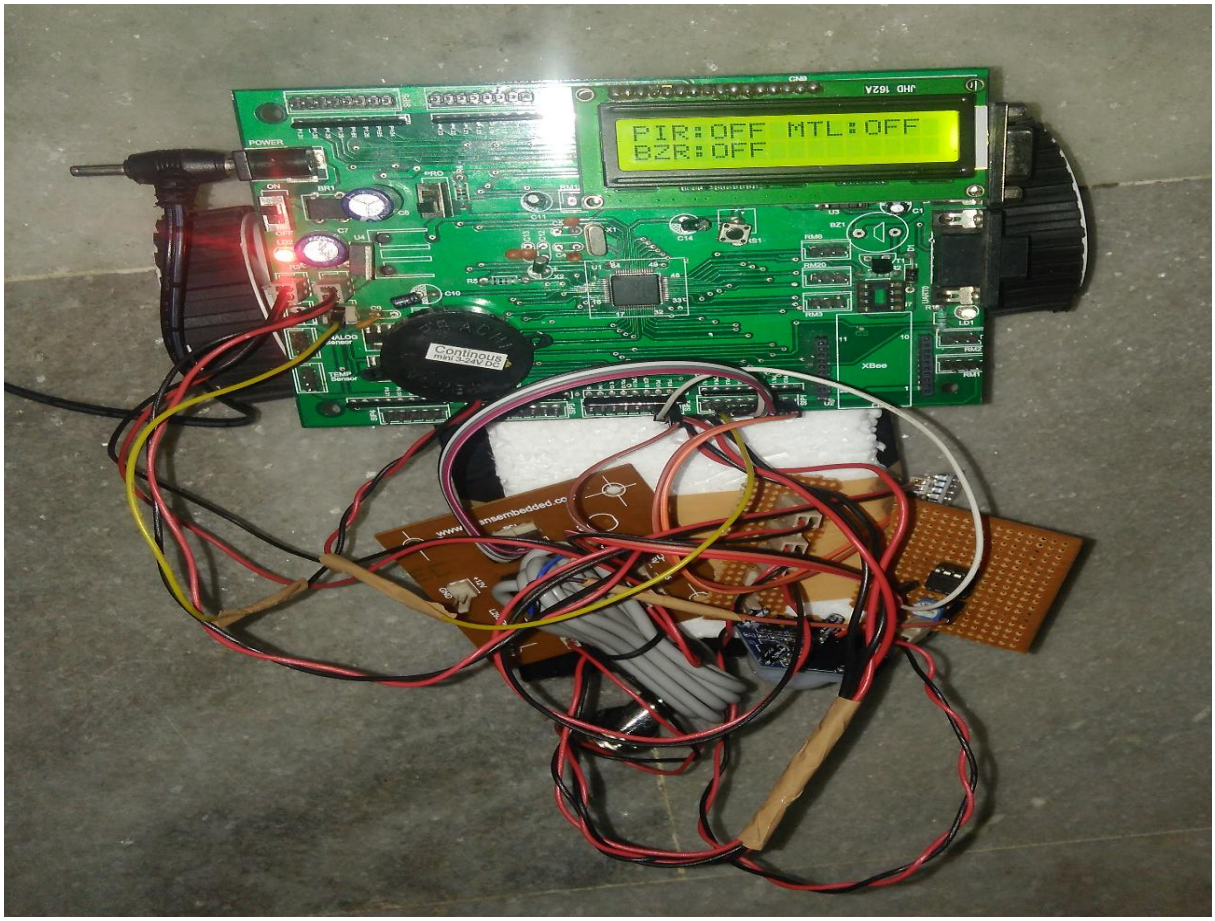
VI. WORKING PROCEDURE

In this venture LPC2148 controller is used.As the ARM processor calls for 3.3v of deliver, so a step down transformer of 230/12V is used to get the desiredAC output. To convert that AC deliver to DC supply is performed by means of using rectifier. DC output includes ripples, to removethose ripples we use filter capacitors. To get output voltages of +5v & +12v we're the use of voltage regulators 7805 &7812. Finally

3.3volts is given to the ARM processor for functioning. ARM processor includes modes of operation i.e.; program mode and run mode. Here all the sensors and module is connected to the controller to do operation. Here the Bluetooth is used to give the commands to the our system regarding directions, the PIR is to sense the movable objects, metal is to detect the bombs and buzzer is for indication. Whenever the sensors gets sensed it immediately alerts the main system then it gives indication to the concern person and he/she can take the decision.

VII. RESULT

The project "**Design and implementation of multipurpose robot for military application**" was designed such that the robot can be operated automatically which is capable of detecting human beings and land mines in its path and which is wirelessly transmitting the to the controlled to android mobile using Bluetooth technology and the live images of the war field can be seen on the Bluetooth.



VIII. CONCLUSION

This prototype is implemented to save the lives of army and navy people. Because most of the cases we find the papers in our military people has died because of bomb blast or with landmines. With our system we can reduce the percentage of losing them. In remote areas we have to use these kind of technology to restrict soldiers. And to give more secure protection and as well as give counter attack. In future we are going to add gsm module to the system to operate from any where by using cellular network.

REFERENCES

[1] A. Anand Kumar "Basic Fundamentals of Digital Circuits" Second Ed.PHI Learning.

[2] Neamen "Electronic Circuits – Analysis & Design" McGraw Hill.

[3] Millman J. &Taub H., "Pulse, Digital & Switching Waveforms" TataMcGraw Hill

[4] Simon Haykin, "Communication Systems"Wiley India, New Delhi, 4Ed.2008

[5] http://www.rhydolabz.com/index.php?main_page=product_info&products_id=1080

[6] D. A. Bell, S. P Levine, Y. Koren,, L. A Jaros, J. Borenstein, "DesignCriteria for Obstacle Avoidance in a Shared-Control System",RESNA'94, Nashville, 1994.

AUTHOR DETAILS:

	**BODAPATI KISHORE BABU** Pursuing M.Tech (ES) from Visvesvaraya College Of Engineering And Technology, Patelguda, Ibrahimpatnam, RangaReddy dist. Telangana, INDIA.
	**G.BHARGAVI** working as Assistant Professor from Visvesvaraya College Of Engineering And Technology, Patelguda, Ibrahimpatnam, RangaReddy dist, Telangana, INDIA.
	**H.RAGHUPATHI (HOD)** working as assistant Professor from Visvesvaraya College Of Engineering And Technology, Patelguda, Ibrahimpatnam, RangaReddy dist, Telangana, INDIA.