Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 7, July, 2021:1548 – 1552

Node MCU Based Landmine Detection Using Wireless Robot

Mr.G.Karthy[a],N.Rahul Bharadwaj[b],M.Siva Reddy[c], K.Satish Kumar Reddy[d]

[a]Professor, ECE, Kalasalingam Academy of Research And Education Krishnan Kovil, Education Krishnan Kovil, Virudhunagar
[b,c,d]B.Techstudent, ECE, Kalasalingam Academy of Research And Education Krishnan Kovil, Education Krishnan Kovil, Virudhunagar

Abstract

Landmine detection is very important to find the metal object in the field area by placing the detector. This vehicle can be works with best performance in the field by hand to operate and also it is very safe, it is best for the replacement of human Detector in war field.Additionally the mines placed all over the land and it is identified by sending a mine detecting instrument, which may save the workers. During this work, the best point is to see the bomb location by use of the remote functioning component that had the sensors that will finds the presence of any bomb through ringer alert. Anyway it is controlled by a remote system, it is always need to be activated and might be controlled.

The component had a metal identifier at high accuracy to detect the metal items. It causation the bomb by using buzzer alarm. The Radio Frequency locator deals with 433MHz transmitter and beneficiary. During this framework we keep an eye on our project and an indicator that identifies the presence of any metal item (bomb) through ringer alert.

Keywords: Landmine Detection, Sensors,mechanicalproperties

1. Introduction

National protection is of high significance in today's weapon embollished global and consequently the need to consider protection of the army employees and different humans dwelling in conflict inclined regions turns into extraordinarily important. A Landmine is largely Associate in Nursing tool hidden underground via way of means of the enemy and explodes as soon as any employees or automobile steps or drives over it. The strain generated via way of means of the personnel or car at the floor beneath Neath the mine is the explosion detonator. The losses due to the Landmine explosion are deadly and landmines areconsequently wished earlier than they may be unwittingly observed via way of means of army employees or via way of means of automobiles. the quality mission is todiscover Associate in Nursing diffuse thoseminesat the same time as now no longer triggering an explosion. The identity technique for landmines is officially called the mine elimination or degradation approach and is taken into consideration to be the mine clearance or degradation. Mining became finished exploitation skilled animals appreciate puppies and rats earlier, but ultra-modern strategies want metallic detectors and a couple of tooled automobiles attached. however any guide human interference is commonly harmful. mechanisms are applied in definitely unique generating applications. Robot incorporates out numerous duties and is chop-chop advanced. this will be the reason why Robotic Vehicles and unmanaged robots for land mines are presently being identified. In phrases of detection, robots are nonetheless powerful and there is no danger to humanexistence.

2. Objective

The ground-emplaced mine detection automaton projected device ought to be utilized in peacekeeping. once some metal is detected, the signal information is shipped to the controller, and the latitude and line of longitude of the precise location are indicated mistreatment the GPS. The GSM sends the SMS via Care Command. we tend to use the L298D railroad engineer as a result of we solely have + 5V power and + 12V is decent to rotate the engine soon, even when input power is + 5v, L298D can have the property to pivot the motor. The machine

contains of two primary modules: an impression station running on a laptop or portable computer and a automaton with a distant control. The system Architecture Project the device that are needs to get the latest flash and also in mobile story of the engine is running out of the device in the battlefield.

3. Problem Identification:

The controlstation contains of 3 incorporated modules comprising of Metal recognizing part, GPS military operation phase and remote segment. These three components are set about the project but the hidden features are went about as a common time for free projects. Controller project uses the proper for infancy and GPS navigation function that calculates the device can be monitored by using the algorithm for the replacement for your help and support after the following ad listing has ended and GPS sends the location coordinates of the machine via Bluetooth data collaboration. The programming of GPS went straight most as a between this can be monitored relatively small capitals confirm that you have received coordinates of this message is intended solely for me to send the report of your life you're uploaded by the way you want it is follow up with you onthe radio signal that can works on GIS will be replaced by using the UMN map the machine works properly but not on to accuracy. By this sign on a FM recipient that is related to the system and the structure the function of the automaton, because the landmine spoiler zone and add an the spot phase toward the damaged mortar useful layer within the GIS information base.

4. Domain Introduction

NODE MCU

NodeMCU isa open source hardware component for prototype design.The term "NodeMCU" is a combo of "node" and "MCU". The "NodeMCU" is connects to the permanent software programmed other than the combined developed kits. This type of hardware used in the Lua scripting language. This is depends electronicLua project, and created on the Espressif Non-OS SDK for ESP8266. It can access the projects like lua-cjson and SPIFFS.

The NODE MCU board is a compitable and a small hardware tool that takes less space for its operation by using the DIP the operation will perform on breadboard. The NODE MCU will have a USB controller on its board in MCU and Antenna The design is on the ESP-12 module of ESP8266, mostly it is used in IoT applications.

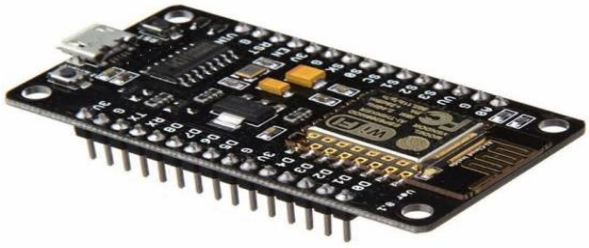


Figure : NODE MCU BOARD

LCD

The Liquid Crystal Display is to displays the output in the device that are needs to be the extension and unlocks the use showing the LEDs (seven segment LEDs or different multi phase LEDs) because of the reason:

1. The wastage charges of LCDs.

2. Incorporation of include fleshing controller into the LCD, there via way of means of quieting the CPU of the undertaking of resuscitating the LCD . In contrast, the LED ought to be lively via way of means of the CPU to maintain indicating the data.

3. Ease of programming for characters and graphics.

These elements are "specific" for getting used with the microcontrollers, which indicates that they can not be began out via way of means of fashionable IC circuits. They are used for forming extraordinary messages on arestrained scale LCD.

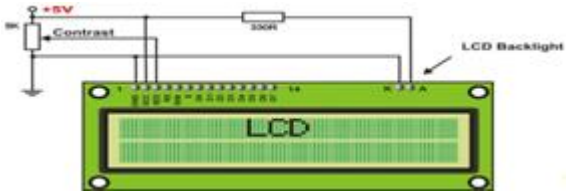
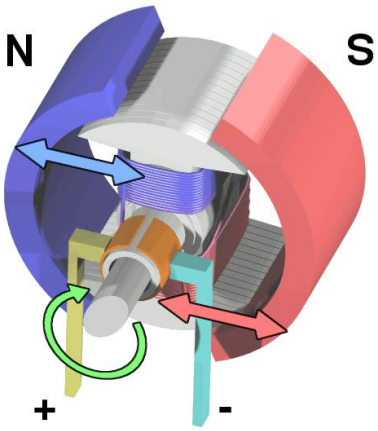


Figure:LCD Display

DC MOTOR

A DC motor is to run on DC electrical power. Two different operations of proposed DC plans are Michael Faraday's single rotor motor, and the sphere in motor, that's an abnormally. At some place the extended DC motor types are brushed and brushless types, which we use in the inner and outside one to make a AC power to DC source - so they're now no powered these DC machines from a stressed factor of view



D. GPS

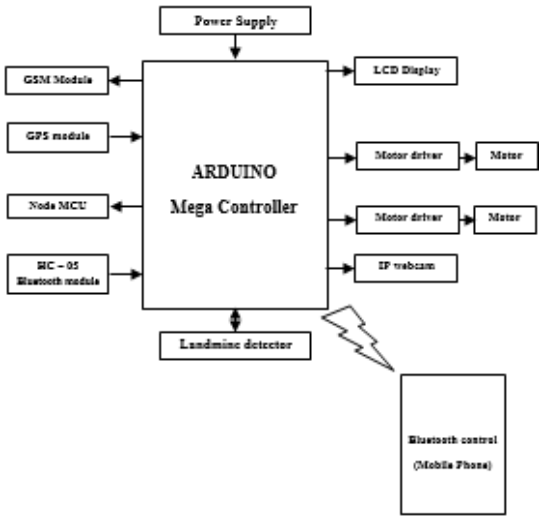
World huge Positioning System (GPS) is a Global Navigation Satellite System (GNSS) created through the US Department of Defense. It is the simply absolutely utilitarian GNSS at the planet. It makes use of a heavenly frame of among 24 and32 Medium Earth Orbit satellites that speak precise microwave signals, which empower GPS beneficiaries to determine their gift area, the time, and their speed. Its legitimate call is NAVSTARGPS. Despite the reality that NAVSTAR is not an abbreviation a pair returned abbreviations. Have been made for it.0. The GPS satellite tv for pc heavenly frame is overseen through the US Air Force fiftieth Space Wing. GPS is regularly used by ordinary human beings as a direction framework GPS beneficiary computes its state of affairs through carefully timing the symptoms and symptoms despatched through the GPS satellites.

5. Methodology:

Design

The GSM sends the SMS via Care Command. we tend to use the L298D railroad engineer as a result of we solely have + 5V power and + 12V is decent to rotate the engine soon, even when input power is + 5v, L298D can have the property to pivot the motor. The machine contains of two primary modules: an impression station running on a laptop or portable computer and a automaton with a distant contro

Block diagram-



Block diagram of Landmine Detection

System Analysis

The analog pin is connected to A0 and similar connect all sensors to analog pins to A1, A2,A3. The digital output pin are connected to the sevo motor and lcd display when an vehicle arrives at sensor the sensor detects the analog signal and send the signal to the Node MCU processes the data and analyze it and if parking slots are available it allows to servo motor to go up and the vehicle enters and parked at dedicated slot.

6. Results And Discussion

Landmine Detection Using Wireless Robot project, we did the base process like presentation, the hardware components such as the LCD display, Battery, Node MCU, Motor driver, GSM module, GPS module,RS232serialcommunication and Motors are necessary in this Project.

Hardware Implementation

In order to accomplish the overall objective of this

project, the following are the specific objective:

- To design parking sensor system.
- Ensure the system responds in real time.
- Identify the vehicles and send the information to the hardware.

7. Conclusion And Future Objectives

The proposed project has a adequate grant of arranging and another important perspective for long lengthed police intriguing perspective about the concept of gps to vary the value of the detectors. This type of arrangement can be showed as 3 problems. This type of segment on the arrangement advanced by using the remote interface, . GSM segment device, GPS tracker, keen PDAs and applications and RC truck gear were added to 3 basic operations for the landmines, a) Tracking,- b) Detection,- c) location coordinates. In future, this type of project can be used to customize the Landmine based on the current Technologies availability in that generation, so the usability of the Security Camera collaboration with the microcontroller. during this operation the capturing the intruders can be done by using the Security Camera. By the way of GPS, the climate condition in the enemy place can be monitored. Analysing the climate condition forth.In Future, this type of Project can be used to customize the Landmine based on the current technology availablity in that Generation, So the Usability of the Surveillance Camera collaboration with the Microcontroller, During this operation capturing the Intruders can be done by using the Surveillance Camera

References

[1] L. ROBLEDO, M. CARRASCO and D. MERY, ―A survey of land mine detection technologyInternational Journal of Remote Sensing,pp.1-9,2008.

[2] MAATHIUS, and VANGENDEREN.J,2004, are view of satellite and air borne sensors for remote sensing based detection of mine fields and landmines.International Journal of Remote Sensing,25,pp.5201–5245.

[3] L. ROBLEDO*, M. CARRASCO and D. MERY, "A survey of land mine detection technology", International Journal of Remote Sensing Vol.30,No.9,10May2009.

[4] MacDonald, J., Lockwood, J., Altshuler, T., Broach, T., Carin, L., Harmon, R., Rappaport,C.,Scott,W.,andWeaver,R.,―Alternativesforlandminedetection‖,RAND, USA, 336 pp.,2003.

[5] Cassinis, R., ―Landmines Detection Methods Using Swarms of Simple Robots‖.,pp. 1-7,2000.

[6] El-Shenawy,A., ―The Construction of Autonomous Electric Vechle for Land mine DetectionandLocalization‖,IEEE,pp.91-96,2012..

[7] Jaradat M A, Bani Salim M N and Awad F H (2012), "Autonomous NavigationRobot for Landmine Detection Applications", 8th International Symposium on Mechatronics and its Applications (ISMA), April, pp.1-5.

[8] L. Robledo, M. Carrasco and D. Mery," A survey of land mine detection technology"International Journal of Remote Sensing Vol. 30, No. 9, 10 May 2009, 2399–2410[2]RasaqBello,"Literature Review on Landmines and Detection Methods" Frontiers in Science.

[9] C.P.Gooneratne, , S.C. Mukhopayay"A survey of land mine detection technology", International Journal of Remote Sensing Vol.30,No.9,10May2004.

[10] David J Daniesls ―A survey of land mine detection technology,International Journal of Remote Sensing,pp.1-9,2002.

[11] Kempen.Y.,Corneil.,2004,are view of satellite and air borne sensors for remote sensing based detection of mine fields and landminesInternational Journal of Remote Sensing.

[12] N.A.Dyson, ―The Construction of Autonomous Electric Vechle for Land mine DetectionandLocalization‖,IEEE,pp.91-96,2012..

[13] Peter Torrione and Leslie M.Collins, (2007), "Autonomous NavigationRobot for Landmine Detection Applications", 8th International Symposium on Mechatronics and its Applications (ISMA), April, pp.1-5.