IJCSE International Journal of Computer Sciences and Engineering Open Access
Review Paper Vol.-7, Special Issue-14, May 2019 E-ISSN: 2347-2693

Camouflage Surveillance Robot

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DOI: https://doi.org/10.26438/ijcse/v7si14.463465 | Available online at: www.ijcseonline.org

***Abstract*—** These days, numerous costs are made in the field of protection in embracing crude safety efforts to shield the edge of the city from the people who wish to enter without authorization. Most of the military associations rely on a robot inthe hazard inclined regions which is difficult to achieve with armed force personnel. The existing Army robots are highly limited in scope with the audio/video, sensors, and metal identifier. The primary goal of our work is to disguise the robot including few add on parameters like Bluetooth for ongoing information handled by the visualization and PIR sensor to follow the interlopers. In this manner the proposed framework utilizing Bluetooth reduces the chances of any careless mistakes and assures the security from the threats posed by the enemy.

Keywords *– Bluetooth Module, Army Robot, PIR Sensor, Wireless Camera and Colour sensor.*

I. INTRODUCTION

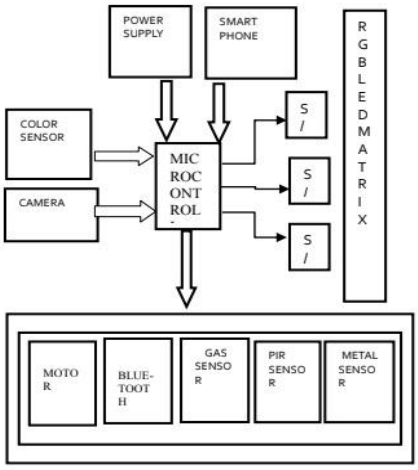
A robot is a programmed mechanical gadget regularly looking like a human or creature. Current robots are generally a guided by a PC program or electronic hardware. Robots have supplanted people in performing monotonous and perilous undertakings. The utilization of robots in the field of battle always raises a concern of morality. The legitimate results of using robots with self-rules and the expected after effects with the invention might be an alarming concern in the future.

Essentially Army Robot is equipped for performing errands, for example, headway, detecting the destructive gas, detecting the people underneath the surface, metal recognition. Armed force Robot is a self-ruling robot including remote a device for recording photographs and visuals which can be used in government services and Bluetooth can be efficient in controlling it from even a remote scene.

Military robots are progressively proficient contrasted with human army. It contributes its efficiency in being worked remote using a controller which ensures the safety of the officer lives. Military robots are enhanced to be solidly built giving out the assurance of achievement in the hazard inclined condition. The fundamental focus of this paperwork is to implement a Camouflaged Innovation based Wireless Multifunctional Army Robot which can be controlled through advanced cell utilizing Bluetooth Module having movement and explores around the hazard inclined territories and attempts to recognize the interlopers, notwithstanding this Army Robot is worked with some man-made consciousness for its wellbeing.

It is been designed with Propinquity metal sensor for recognizing metal and MQ6 gas sensor for destructive gas identification.

II. BLOCK DIAGRAM



III. HARDWARE SPECIFICATION

A. Micro-controller

Micro controller forms the heart and soul of a robot. It actively controls all the movements of the gadgets connected to it. It also regulates the transmission and congregation of

signals. It uses 5V power supply through the circuit. It is embedded with an additional crystal oscillator with clock occurrence of 11.59Mhz. This microcontroller uses AT89c52 Integrated Chip with 40 pins for driving the robot. This Integrated Chip is equipped with less power consumption and 8KB Flash memory & Programmable Memory. It also supports reconstructing with on chip flash memory and can be effectively interfaced.

B. PIR Senor

The PIR (Passive Infra-Red) Sensor is utilized to recognize the progressions made in the encompassing article by estimating the infrared dimensions made by the development of item. The high-flag is mentioned in the I/O stick. This is a pyroelectric gadget made up of crystalline material. This generates an electric charge when it encounters infrared radiation. An on-board intensifier is utilized to quantify the adjustments in voltage created that is acquired by the infrared on striking the item. Fresnel Lens is an extraordinary sort of channel utilized in this sensor which is utilized to centre the infrared flag onto the item. The movement of the article is demonstrated by ready intensifier on quick difference in the encompassing infrared flag. This PIR sensor has a solitary piece yield having little size that makes it perfect to every single smaller scale controller of 3V and 5V task with <100uA current draw.

C. Power supply circuit

The most domineering part of any electronic framework is its power supply. It uses +5V and +12V to activate the sensors, DC motor, LED matrix, Bluetooth module and miniaturized scale controller. 5V is used by the three terminals of the IC 7805 input stick, yield stick and ground. The loose DC voltage from capacitor is fed into the input stick. Transformer voltage is unplugged and modified by the capacitor.

D. Bluetooth Module

This module is controlled by the flag using an upgraded mobile phone comprising of an Android application featuring one ace and numerous slaves.

E. Color Sensor

To dissect the colour of its condition, colour sensor is utilized. The colour sensor utilized gives little size, ease, effectively good. This colour sensor is little in size and coordinated on a little module making wiring simple and furthermore discharges exact data of the nonpartisan colour lighting of unadulterated white. The working standard of colour sensor is straightforward. Photograph diode is utilized to produces motion in the wake of responding with the colour channel on accepting light reflected by ground. The created flag is examined regarding frequencies and after that gives ground colour.

F. DC Motor

Robot's motion is exploited by DC motor using 12V power supply circuit. Miniaturized scale controller is used to perfect the utilization of DC motor.

Force = (current) x (wire-length) x (magnetic field).

G. Gas Sensor

To break down the toxic gases present in the condition gas sensor has been utilized. High affectability to LPG, propane, affectability to smoulder yielding quick response and long reliability.

H. Camera

The device used to record photographs and visuals here in this venture is being utilized for the constant information considerate which is remotely done utilizing RF trans collector.

I. Metal Detector

Metal Propinquity sensors are used to identify the metal objects ranging from 1cm to 7cm. The LED will glow, and the buzzer is activated on detection. The belief of this sensor is the inductive oscillator circuit which is used to record the losses occurred in coil in case of high frequency. The idea is based on

identifying the Eddy current loss formed by high frequency which leads the way for the detection of metal object in the place by giving out change in the output signal level. It depends on the distance of the object located. The flow of the current can be recorded to the maximum when the object is found near the coil and minimum when found at a decent distance. It has a huge contribution in terms of detection, operating range varies on size of the object utilizing power of 5V DC.

J. LED Matrix

8x8 RGB LED Matrix is used for displaying the colours. A uniform colour zone is created when one colour is encoded with one matrix. It utilizes less power, and lightning quality is greatly enhanced with the ease of wiring using 2*16 pins where the greater focus is on reproducing a colour in the robot.

IV. IMPLEMENTATION

Camouflage technique is used for the building of this surveillance robot. The focus of the paper is to produce a robot which operates via a smart phone as a controller in turn producing the colour as it moves on the ground surface, cloaked to the outside world. To accomplish this, LED matrix (RGB) capable of diffusing uniform colours when coupled to sensors were used. It reproduces colour with precise spots on ground independently representing a

checkerboard of various colours. A system is used to translate the received information from the smart phone and using Bluetooth it can drive the robot in the desired direction. To improvise even better camera is involved to capture the real time data wireless through RF, toxic gases is identified using gas sensors, detection of weapons or any other kind of metal objects is carried out through metal sensors, any sort of human imposters or soldiers underneath the earth are captured through PIR sensor, detected parameters are displayed through LCD. The robot is disguised and can be controlled from a remote distance of an object. Therefore, in the Defense sector, this robot will help to disguise the large vehicles as it is very important in the missions carried out by army as well as in the intelligence sector to spy on the enemies.

V. CONCLUSION

The main purpose of the paper is to implement a camouflage technology based surveillance robot. We have used an IR sensor to detect any obstacles in front of the robot. It also helps in identifying humans. Metal detectors and gas sensorsare also being used in order to sense toxic gases or mines. We have used a wireless camera to transmit the live feed back to the screens of users. Hence, this device can be used in 24 hours patrolling missions.

ACKNOWLEDGMENT

I express gratitude towards Prof. Bindushree.D.C for her magnificent direction in this research and continually supporting me all through the whole research

REFERENCES

[1] Premkumar .M "Unmanned Multi-Functional RobotUsing Zigbee Adopter Network For DefenseApplication" International Journal of Advanced Research in Computer Engineering & Technology (IJARCET)Volume 2, Issue 1, January 2013.

[2] Akash Ravindran and AkshayPremkumar "Camoflage Technology"International Journal of Emerging Technology in Computer Science & Electronics (IJETCSE) ISSN: 0976-1353 Volume 8 Issue 1 –APRIL 2014.

[3] George Bekey," Autonomous Robots: From Biological Inspiration toImplementation and Control", MIT Press, Cambridge, MA, 2005.Mr. M. Arun Kumar, Mrs. M. Sharmila "Wireless Multi AxisROBOT for Multi-Purpose Operations", Department of ECE, SVCET & JNT University Anantapur, India.

[4] Robotic Systems Joint Project Office- Unmanned Ground SystemsRoadmap by Materiel Decision Authority (MDA):Macro USA,McClellan, CA, February2012.

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