

**WIRELESS LAND MINE DETECTION AND SURVEILLANCE ROBOT**

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ABSTRACT: In this paper we proposed a cost effective surveillance robot with wireless control . In the global environment some antagonistic peoples are challenging this society with their destructive activities. The main purpose of this paper is used to protect the human life from the miserable incidents. This developed robot is used to detect the metal objects like bombs and landmines. The intention of this paper is to design a robot prototype which is used to detect the metal objects and changing their location. A surveillance camera is incorporated to capture the video information. For further analysis the captured videos is transmitted to the controls room by using WIFI.

KEYWORDS: Detection, changing place of landmine, surveillance, WIFI

INTRODUCTION

Surveillance is the process of monitoring the current situations or person. This developed robot is used for many applications. But the main aim is surveillance of the borderlines and enemy territory in military scenario. Because deploying the human for surveillance purpose in a sensitive area it is not possible .There is also added risk of losing the person in the event of getting caught by the enemy. By using this developed robot, we can avoid all these kind of incident. It is a multitask cooperative controlled for personal landmine detection and extraction of mines from the solution

for landmine detection and extraction problems.

EXISTING SYSTEM

In general for home security purpose the WI-FI enabled robots are used. It is also used for various application. If any people coming inside the home that robot watching or monitoring them, Just like spy. The existing robot only used for surveillance purpose; CCTV camera also doing the same. There is no big difference between them. This is a major drawback of the existing system since it is not focusing accurately in many places.

PROPOSING SYSTEM

This paper is rather unique. Because our developed robot doing the multiple operation such as surveillance the area, bomb detection, change the landmine location , sense the atmosphere temperature by using temp sensor, and measure the oxygen level in the air medium by gas sensor and all those things are controlled by the pc by using the LABVIEW software.

RELATED WORKS

The developed robot provide live video feedback

The wireless surveillance robot has been done lot of work by using a navigational algorithm.

LITERATURE SURVEY

There were some literature which referred before starting the work to take a good idea and to check the possibilities of getting the needed result .Wireless detection of GPS & GSM; Prof. R. M. Sabu , Mamata . s .Swant, komal. s. salve, mangesh . n. nakade in their study explained about the detection of landmines using GPS and GSM. But it has the drawbacks like if there is no provision of GSM network in such areas. If the air masses in the sky GPS will not work. Landmine detection robot using using radio frequency of K.Vidyasagar, U.Nageshwarrao,K.Suresh and MD.Abdul Farooq; In this study by using radio frequency the operation is in limited range, it also has a drawback of security reason. So in our paper we have the ideas to overcome those drawbacks.

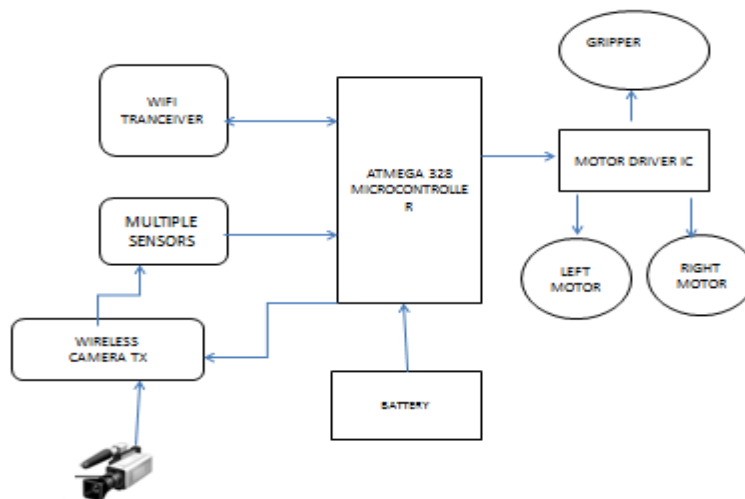
SYSTEM DESCRIPTION

The following block diagram represents the construction of military robot. The control is established by LabVIEW software. Multiple data such as visual feedback, temperature collected by the robotic vehicle.

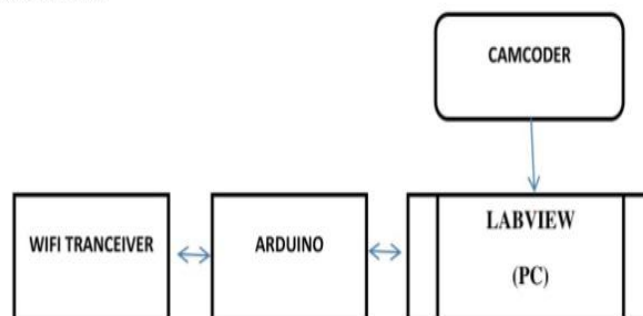
The robotic vehicle consists of two sections

1. Robot section
2. Control section

In control section, we have WI-FI transceiver, arduino, labVIEW software, camcorder



Control section:



WI-FI transceiver acts as a transmitting medium. An arduino is connected with the pc. Lab VIEW software is used to establish a control over robot. Camcorder is connected with pc to receive the visual data sent by the robot section.

In robot section, we have Atmega328 microcontroller, multiple sensors, wireless camera ,battery.

Atmega 328 is a High Performance, Low Power AVR8-Bit Microcontroller, Advanced RISC Architecture, it has High Endurance Non-volatile Memory Segments. Inductive sensors use currents induced by magnetic fields to detect nearby metal objects.

With LM35, temperature can be measured more accurately than with a thermistor. It also possess low self heating and does not cause more than 0.1 °C temperature rise in still air. Gas sensors are used in gas leakage detecting equipments in family and industry, are suitable for detecting of LPG, natural gas.

WORKING PRINCIPLE

Arduino Uno board is a open source prototyping hardware used for the robot. A wifi module is connected to the Arduino board. Once connection is successfully established, the user can send controlling commands through the GUI of the LABVIEW software. It is a front end software. We can read or write a multi thread programs using lab view. It is easier to connect external tools using lab view. It helps in data aquisition and data visualisation. The command sent from the PC is received by the Wifi module which transmits it through serial communication to the Arduino board.

The Arduino board processes the commands and provides the appropriate output to the motor driver shield L293 D. L293D is a dual H-bridge motor driver integrated circuit (IC). Motor drivers act as current amplifiers since they take a low-current control signal and provide a higher-current signal. This higher current signal is used to drive the motors. L293D contains two inbuilt H-bridge driver circuits. In its common mode of operation, two DC motors can be driven simultaneously, both in forward and reverse direction. The motor driver shield provides the required power to the motors according to the given commands.

The robot is based on the open source prototyping hardware board called Arduino board. A WIFI module is interfaced with the arduino board. WIFI module provides serial communication with the arduino based robot. The android application is designed in two modules i.e. the control module and the video streaming module. For controlling the robot, image buttons are used. For the live streaming purpose, a browser is integrated in the same application which fetches the IP address of the network camera or the android phone mounted on the robot. The diagram describes that the user requests for the connection with the arduino robot through the wireless WIFI technology. Once the connection is established between the LABIEW software and the robot, the user sends the control signals to the robot via WIFI. The LABIEW application contains the image buttons for the navigation purpose. Forward, backward, left and right direction buttons are used in the applications for navigating the robot.

ADVANTAGES

1. It is movable surveillance system. It can be controlled remotely , it does not need man power
2. .It has auto and manual mode It can be used for critical applications like flood ,bomb disposal ,fire, terrorist attack, bank security etc
3. .Fast response
4. This prototype works upto 50 m.

RESULT

This study considered the advancement in surveillance and landmine detection robot. The detection of mine process is carried out using metal detector sensor that operates based upon electromagnetic induction (EMI). The location of mine is detected and extracted to other places. Robot has flexibility of manual and auto modes of operation with rapid and safer.

FUTURE WORK

- * In case of plastic, detector can be replaced by ground penetrating RADAR and other mechanism
- *Iot can be imparted for future enhancement

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