Anti- Terrorism Defence Robot

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Abstract
Surveillance robots play an enormous role in many walks of life and are extensively employed within the areas of defence, industries, medical and house appliances. The term espionage is the act of spying over a specific area, with the help of spies. These robots are going to undertake to different risky jobs that cannot be done by humans and are very helpful in warzones. This paper presents anti-terrorism robot for defence purpose that as metal coverage to provide shock. The system provides continuous visual monitoring via the wireless camera attach to the robot and sends continuous data to the control unit. The robotic vehicle worked as hand-operated vehicle by using internet as wireless security robot superannuated because of finite frequency range and restricted manual control. They are existing in war-zone additionally as in our cities, IT then the virtual world, practically everywhere. They are becoming a really predominant factor of succeeding development in military and non- military technology additionally because of the society, organizations and governance. This unit is beneficial and useful for surveillance of a neighbourhood in defence ground for enemy, spying purpose where the human reach isn't recommended or avoided.

Keywords: *Battery camera, Bluetooth (HC-05), Electric arc generator, mobile control, Surveillance.*

1. INTRODUCTION

The field of robotics is an integrative division of engineering that features branches like mechanical, electronic, information, computer then on. Robotics deals with planning, construction, operation, designing purpose etc. The technologies are so advanced and improved that for controlling and

checking the sensory feedback and knowledge processing, computer systems has been used. The advanced technologies and vast upgradation in the robotic field paved way in developing robots similar to humans. These robots can be used in dangerous situations were human beings cannot handle or withstand. They are programmed in such a way that they can imitate exactly like humans. Robots can be made of any form. But mostly they are developed in human form for our convenience. The other reason for developing and using robots is that they can operate continuously without any support for long time compared to humans. Throughout history, it has been frequently processed by various inventors, engineers, and technicians that the robotics fields will have a tremendous scope in near future.

2. LITERATURE SURVEY

An extensive literature related with anti-terrorism defence robot is critically investigated in this chapter. A comprehensive review of literature on evolution of anti-terrorism defence robot and its performance are presented. Further, the summary of the review is provided at the end of the review to justify the scope of present work.

Radek Doskcoil, Yves Bergcon and Tomas Kornelly [1] designed a robot by using an optical sensor. This provide connection between the remote server and the rolling chassis. It also enable us to determine its relative position. Mobile phone can be used as a source of sensors and also for remote communication. Remote server receives the status about environment and robot. This method just uses one camera for recording and thus reduces the processing costs when compared to common infrared sensor caused by false detection.

Joseph R. Bourne[2] designed a robot for autonomous plume source term estimation using a non-parametric Bayesian based motion planning algorithm. This robot estimates the parameters of a gas plume and its source seeking and thus determines the location of a plume source by navigating a mobile sensor towards the source. The chemical sensor is used detect any changes in the environment like gas leaks and sends information to the computer processor. The disadvantage of this is that, during heavy wind it is difficult to pinpoint the source location of gas plume.

Sergio Sandoval and Preetha Thulasiraman[3] proposed a Robot Operating System for Cyber Security Assessment. Its preliminary design is exempt from any network security features. This system uses a technique of Data Distribution Service standard. By incorporating authentication and encryption techniques it can able to provide solutions by identifying the security vulnerabilities.

James Humann1 and Kimberly A. Pollard[4] proposed a scalable systems which can able to adjust their size with costs so thatthe resulting changes can increase its performance. Human operators and all resources are simulated. A task with wide range of sizes can able to scale existing algorithms and this greatly reduces the cost. This system can able to deploy the required size in short duration without any additional cost for infrastructure updates.

Haitao Zhao and Xiaowen Chu[5] proposed a Self-Adaptive Motion of Swarm Robots. Collective motion algorithms enables thisrobots to move along a preplanned path. This system is usually powered using a battery and has a wireless transceiver to exchange information within the communication range. The robot can able to carry a variety of electro-mechanical sensors to interpret with the surroundings and to explore them.Thus this swarm robots has many applications including surveillance, search and rescue.

Lavanya K N and Ramya Shree D[6] proposed awar field robot with wireless video transmission. This robot can be controlled using gestures which is much better than speech recognition algorithm. By using the threshold technology it can able to recognize the gesture. The Arduino is used for processing the recognized gestures and sent the data wirelessly to the robot. It also contains optical flame detector which is used to detectthe presence of fire of various spectral bands.

3. OBJECTIVE

The initiative motive for designing this defense robot is for the scrutiny of terrorist in combat region or in partition area of our country in order to decrease the raid from the enemy side

4. PROPOSED SYSTEM

The existing system only captures the view and sends the video to the base station or handlers. In the proposed system, the Defence Robot can be controlled by the handler or base station and work according to the instruction given by the handler or base station. It will attacks the stranger by giving electric shock**.**
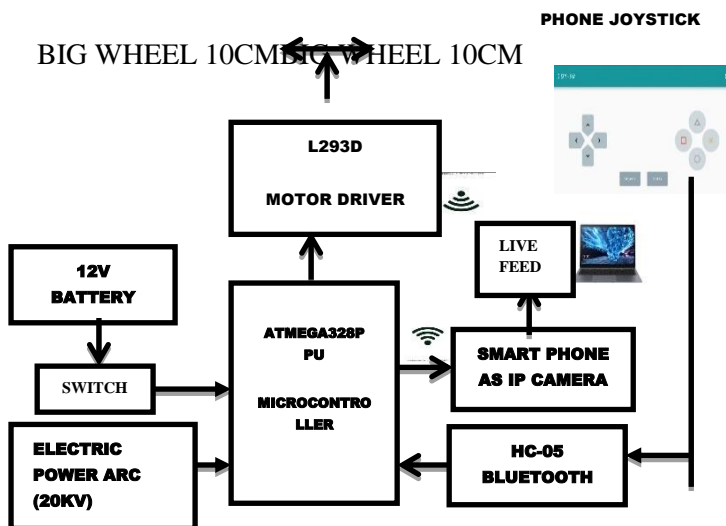
5. BLOCK DIAGRAM OF PROPOSED SYSTEM

Figure5.1 Block Diagram of Proposed System

6. HARDWARE DESCRIPTION

6.1 Arduino UNO
The Arduino UNO is an open-source model incorporates AT mega328p. The board has input and output pin of Digital pins (14), Analog pins (6) and Programmable with the Arduino IDE through a USB cable. It can be recharged with the help of USB cable or by an external supply of 9 volt battery, though which it accept the voltage between the ranges of 7-20 V. Arduino UNO is given below in the Figure6.1.

Figure6.1 Arduino UNO

6.3 Bluetooth
HC-05 module is constructed for wireless serial communication. It is served as a Master or Slave configuration, making it a great solution for wireless communication. Figure6.2 depicts the image of Bluetooth(HC-06). The slave type component cannot able to begin a connection to another Bluetooth device, but can consider the connections established by them. Master type component can begin a connection to other devices. It can be communicate between two Arduino or communicate with phone or PC through Bluetooth functionality.

Range of Bluetooth is restricted on its class and they are classified into three classes:
➢ Class 1: power at 100 mW, distance of 100 meters or 328 feet.

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> Class 2: power at 2.5 mW, distance of 10 meters or 33 feet.
> Class 3: power at 1 mW, distance fewer than 10 meters.

Figure6.2 Bluetooth

6.3 Motor Driver

The Motor Driver is used to control the working speed and direction of two motors simultaneously. This Motor Driver is inbuilt with L293D IC. It has a 16 Pin. Bidirectional current will flow at voltages from 5 V to 12 V. Motor Driver is given a below in Figure6.3. It performs on the concept of H-bridge. Due its size, it is mostly used in robotic application for controlling DC motors.

Figure 6.3 Motor Driver

6.4 Relay

A relay is an electronic device that is activated by an electric current. The current flowing in one circuit is responsible for the opening or closing of another circuit. Relays are similar to switches and are used in many applications. For example relays are utilized in refrigerators, washing machines and dishwashers, heating and air-conditioning controls. The image of relay is shown in Figure6.4.

Figure6.4 Relay

6.5 Electric Arc Generator (20KV)

Precautions for using the module:

The internal part should not get heated, in order to avoid this heat, it cannot operate for a long time
High voltage component should be avoided.

Using Method:

There are two input and two output wire, red wire is positive terminal, green wire is negative terminal. These input wire are connected with battery to achieve high voltage. Other two output wire for measuring proper distance.

Input Power:

Consist of 3.7V lithium battery. An electric Arc Generator is given below in Figure6.5.

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Figure6.5 Electric Arc Generator

6.6 12V Battery

A 12V battery (Figure6.6) is made up of one or more electrochemical cells. When a battery is producing electric power, its positive end is the cathode and its negative end is the anode. The negative is given to an external circuit and provide energy to an external device. It is the mobility of ions within the battery which allows current to the battery to do work.

Figure 6.6 12V Battery

6.7 Android Phone as IP Camera

IP Webcam is installed in your phone with different viewing options. With help of this app, we can able to see the surroundings and also able to hear the audio and too detect the motion of the terrorist.

7. WORKING

The important technology used here for serial communication is that the Bluetooth technology. With help of this technology,instruction from mobile Bluetooth and Bluetooth in this design are connected. And we have loaded information to Arduino for controlling the robot to perform work like attacking, movement and monitoring. The scotopic vision wireless camera is attached with the robot so as to observe true appearance for full rotation. The below diagram mentioned within the Figure5.1 explains the working process of Proposed System.

The Sydney siege is the incident deals within the field of automation and robotics. It is one of the best war related historic moment.

Inspired with this incidence we conceive to make somewhat more advanced robot which can even be equipped with the facility arc feature which isn't used before in any robot. This technology allows us to supply 20KV current and provides shock to the terrorists from remote location.

the most idea to construct this robot is for the spying purposes, it for to stay an eye fixed on people maneuvers within the battle ground or within the war days to cut back the possibilities of takeovers from the enemy side. Army people need to face many dangers on their lives while spying. to beat these ideas for this job robot are going to be more suitable and can decrease the risks of loss of human lives and may better spy illicit maneuvers of their opposite entities. Before entering to any doubtful districts we are able to send robot to test the status of that field therefore the military or army individuals don't must risk their life. These kinds of robot are going to be constructed in such some way that it'd have an evening vision camera mounted on that so within the darker places or in night it can record the view clearly. Camera are going to be controlled through remote by using an android application.

8. RESULT & DISCUSSION

This project is designed to establish a robotic vehicle for remote area operations and which is attached to a IP wireless camera for monitoring purpose. The robot can transmit audio visual data such as videos or photos in real time. The wireless robot can be useful for under cover purpose in battle fields. And this is the first of its kind robot which is equipped with power arc device which can give an electric shock of 20 KV range. Location of terrorists can suitably be revealed using such robot. The prototype of this proposed system is mentioned in the below Figure8.1.

Figure8.1 Prototype of proposed system

9. FUTURE WORK

In future, these systems can be made more efficient by using Artificial Intelligence to predict the direction of incoming obstacle and to get relieved from it automatically. Image processing can be used to detect and differentiate the type of weapons used by terrorist.

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