



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Review On Design And Analysis Of Pick And Place Robot

Dr. Harish Harsurkar¹, Powar Dhanashri vikas², Birajdar Shivaraj Mahadeo³, Shendage Hanmant Dattatray⁴, Shaikh Humera Rajjak⁵

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala, India

²³⁴⁵Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala, India

ABSTRACT:

This system is very beneficial in areas where there is high risk for humans to enter. This system makes use of robotic arm as well as robotic vehicle which helps not only to enter an area involving high risk but also to pick whatever object it wants to. The system also includes night vision camera which will not only allow viewing whatever will be recorded in day time but also during night. The whole system is controlled via RF remote. The system sends commands to the receiving circuit mounted on the vehicle through push buttons. The receiving circuit involves 8051 microcontroller and a receiver which receives commands sent by the transmitting circuit. At first the system is set to control the movement of vehicle. In order to set the system in a mode that operates the arm. At first the user needs to press the push buttons for moving the vehicle in whichever direction it wants i.e. forward, backward, right or left direction. In order to make the arm movement, the user needs to long press the forward and backward push buttons. Thus this system makes use of camera, robotic arm and robotic vehicle to enter a high risk involving area and also to pick, move and drop an object as well as record the place wherever the system goes and later view it for future reference.

1.INTRODUCTION

In the war field areas. It's unsafe for the persons in the border areas to do all the huge work themselves. The huge ways are dangerous for the soldier. As a result of that robot plays an important role in the place of the warrior. Our design is designed keeping in mind, the view of the current civil wars, military insecurity and terrorist scripts across the globe. Nearly, every day so numerous trained people get either injured or losses their lives while dealing with or trying to defuse the bombs. All this can be perceived by

the innumerable number of newspapers and pictures that appears daily on news channels and print media around the world. Then we are going to construct a robot, which is used for bomb disposal purpose. The main idea of the robot is to serve the bomb disposal team with proving safety and security from the troubles that they're facing in their daily lives. The bomb outfits in India have various sensors and may be some other outfit for detecting the bomb and disposing it, but still they have to keep their lives at threat by going near the bomb physically or the suspicious packets without any safety and preventives. Now a days IOT technology taking granted for most of the controlling operations like medical, defense, machine, artificial design, smart metropolises and numerous further. It has been considered as another technological revolution. A High number of operations and regulator can get connected to the IOT network, and with the help of the robot, we can dispose the bomb. This design is concentrated on developing a military surveillance system that helps the soldier to cover the places and to avoid intelligencers entering into our areas by using web camera and IOT technology for distant control as well as bomb disposal.

The technical improvement together with the need for high performance robots created faster, more accurate and more intelligent robots using new robots control devices, new drives and advanced control algorithms. The presented robot control system can be used for different sophisticated robot applications. This spy and bomb detecting robot was fully controlled by the remote and the commands from the remote via rf transmitter were received by the controller . So this spy and bomb detecting robot can be used in military applications. Most of the military organization now takes the help of robots to carry out many risky jobs that cannot be done by the soldier. These spy robots used in military are usually employed with the integrated system including gripper and cameras, video screens, sensors. The military robots also have different shapes according to the purposes of each robot.

2.LITERATURE SURVEY

[1] Sarmad Hammed, Adeel Azfar Khan, Military spying robot The main aim of this paper is to make a robot which helps us to monitor video surveillance for detection of spies. The proposed robot has camera unit that is useful for monitoring live video by preventing damage of the human life by providing security to the humans. Now a days, providing security at the military order areas like Kashmir.becomes even more difficult task. even though border areas providing their support and safety to the people, but it is not as easy task to watch every moment and providing security at the night becomes even more difficult. An indispensable obligation of this circumstances a robot which impulsively spots intruder in the military border areas. Robot plays an important role in serving humans, even some robots put back humans by doing their work and by providing security to the persons robot .This robots can be used for short range distances at the border areas. This robot has inbuilt microcontroller and web camera to detect the obstacle path.

[2] Priyanka Yadav, Leena Chaudhari, War Field Spying Robot with Wireless Night Vision Camera This robot mainly focuses on safety of soldiers in the warfield. By using this robot we can maintain the distance from an enemy while attacking increase our elasticity occur by knowing their activities. Here we are using laser for to lock the position of the enemy and missile, and it also have a additional feature like mine

detector it will help us to know where the land mines which makes to lose many lives. The project is designed to develop a robotic vehicle using RF technology for remote operation attached with wireless camera for monitoring purpose. The robot along with camera can wirelessly transmit real time video with night vision capabilities. This is kind of robot can be helpful for spying purpose in war fields. An ATmega16 microcontroller is used for the desired operation. At the transmitting end using Joysticks, commands are sent to the receiver to control the movement of the robot either to move forward, backward and left or right, ARM up and down etc. At the receiving end two motors are interfaced to the microcontroller where they are used for the movement of the vehicle. The RF transmitter acts as a RF remote control that has the advantage of adequate range (up to 200 meters) with proper antenna, while the receiver decodes before feeding it to another microcontroller to drive DC motors via motor driver IC for necessary work. A wireless camera is mounted on the robot body for spying purpose even in complete darkness by using infrared lighting.

[3] V. Abilash, J. Paul Chandra Kumar, Arduino Controlled Landmine Detection Robot The paper describes an advanced multi-sensor demining robot. The robot transport system is based on a simple structure using pneumatic drive elements. The robot has robust design and can carry demining equipment up to 100 kg over rough terrains. Due to the adaptive possibilities of pedipulators to obstacles, the robot can adjust the working position of the demining sensors while searching for mines. The detection block consists of a metal detector, an infrared detector, and a chemical explosive sensor. The robot is controlled by means of an on-board processor and by an operator remote station in an interactive mode. Experimental results of the transport, control, and detection systems of the robot are presented. The main disadvantage of the robot is weight factor due to the overloading of sensor.

[4] Rajat desai, Virendra naik, Advanced military spy robot and bomb disposal This paper presents the wireless bomb disposal robot which will help to improve defense of our nation from terrorist, suicide bombers and other such activities. The bomb detectors and disposal system works only with the presence of experts. But this way of analyzing takes more time and make risk to life of experts. The Wireless Bomb Disposal Robot uses a control application, at the user end to control the robot remotely using Wireless technology. The bomb technician controls the robot using this application at control site. Input from the user is transmitted over Bluetooth to the Receiver, where it is received, identified and given to the appropriate module (Robot) to act. The Robot consists of a Base, a robotic Arm and a wireless camera on it. We have used DC motors for the elbow and the gripper of the robotic arm. As we are not risking the life of a bomb expert or any other commando. Hence introducing the safest way for disposing the explosive to save life of common people. By using this robot we can easily controlled wirelessly by using android mobile which is connected to Bluetooth. We have done this project mainly to safeguard the army from landmines and missals without letting the soldiers life in risk.

[5] Amit Kumar, Rinkesh Ingole, Neha Roy, Military spying and military mines detection wireless robot with night vision camera The main aim of this paper is to detect the spies at the time of the terrorist attack. The proposed spy robot is used in land and underwater. This paper deals with the controlling robot with

Raspberry pi and ultrasonic sensor is used to detect the presence of the humans. This robotic model is mainly useful in the remote areas for providing security and in underwater mines to detect the presence of bombs and sends the information.

3.PROBLEM STATEMENT

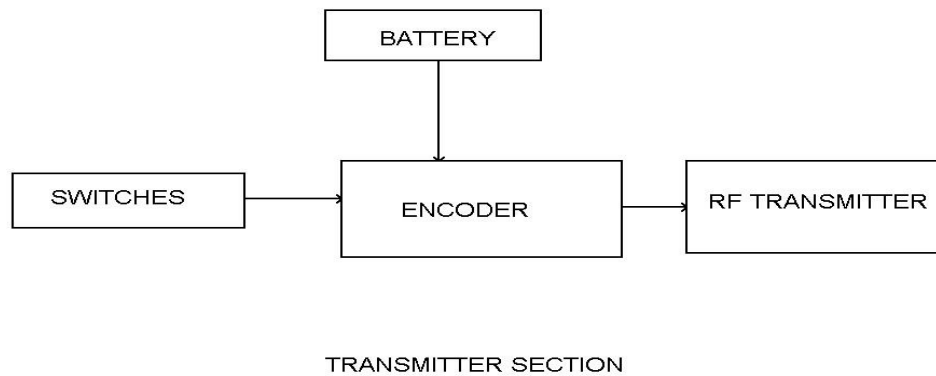
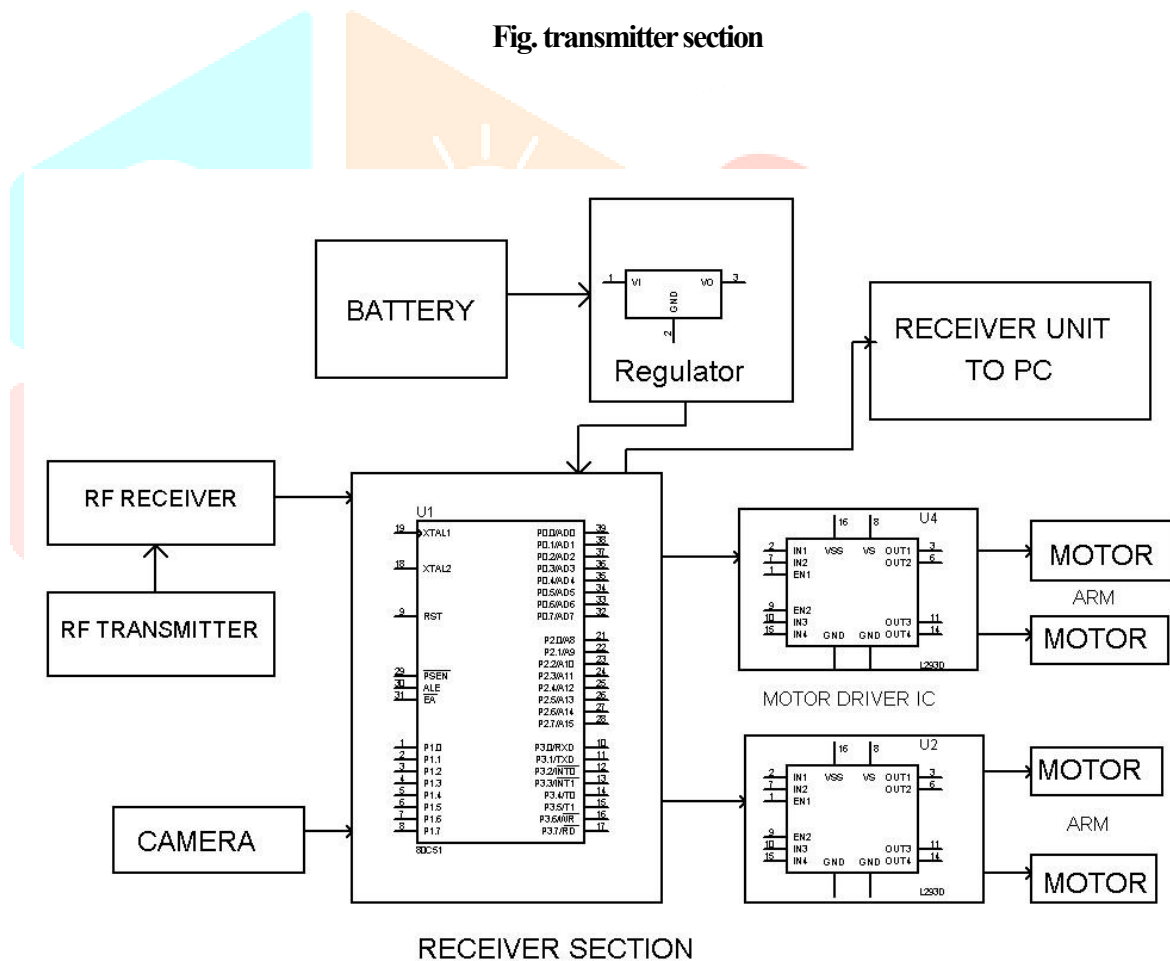
Lifting a suspected bomb may be injurious to human handler if it blasts while transferring it from one place to another I. e. from crowded place to remote open area.

3.1 OBJECTIVES

1. To run the robot by remote wireless operation upto suspected thing
2. to pick and place the suspected thing to required location by remote wireless operation

3.2 METHODOLOGY

Project uses HT12E Encoder which converts 4 bit data to serial output which is then fed to the RF module for transmitting the same to be received by the receiver RF module the output of which is fed to HT12D the serial decoder IC, the output of which is fed to controller. The transmitting end MC is connected to a set of pushbutton. Thus while a particular button is pressed the program executed delivers corresponding 4 data which are then transmitted serially at port 1. The data so received at the receiver end of port 1 operates the motor through motor driver IC L293D as required being interfaced from the Microcontroller output port 2. The transmitter is powered by a battery in series with a silicon diode to finally develop required voltage for microcontroller circuit. The receiver is powered by a 12v battery in series with a silicon diode to protect the circuits from accidental reverse battery connection. 5V DC out of the 12V available from regulator IC 7805 is fed to the controller, decoder, the motor driver IC L293D pin 8 for operation of the motor. The receiving unit uses one more motor driver IC L293D for driving one DC Motor for arm operation. Thus in the event of a bomb disposal the robotic vehicle is moved over to the location by operating the left, right, forward & backward button etc.

BLOCK DIAGRAM**Fig. transmitter section****Fig. 3.1 receiver section**

ADVANTAGES

1. The proposed system of the bomb- disposing robot will be very useful in the area of security and spying of enemies.
2. Using camera. it's easy task to watch every moment which are act at border areas and it's Support as well as safety to soldiers
3. Using sensors robot can detect "mine in military areas. In addition, other secure a Because of that robot dispose the active.

DISADVANTAGES

1. Military robots can be hacked and and misused through the enemy.
2. Robot can be jammed by the use of the jammers available by blasting electromagnetic noise at the radio frequencies

APPLICATIONS

1. Helps for surveillance and provide security for the people.
2. For hostage situation, reconnaissance missions video feedback.
3. Beneficial in areas where there is high risk for humans to enter.
4. Robot which helps for the surveillance and for providing security for the people
5. The pagers of identifying spies become easy with this project especially the military purposes.
6. The spy robot can easily move, capture images and wirelessly transmit them, thus giving the soldiers an intimation about the dangers and situations in the war field.
7. The robot will move depending on the motor direction based upon the input we give through transmitter (remote) section.
8. Robots can make quick decisions in fast-paced combat situations.
9. Human lives can be saved if robots are sent into frontline combat.
10. They can be mass-produced and upgraded instead of being trained.
11. Military robots can traverse hazardous environments that are otherwise fatal to humans.
12. Military robots are often lifesaving, they can perform duties similar to human duties without the actual danger to human lives.
13. They can be easily replaceable.

FUTURE SCOPE

This spying robot can be modified and made it for prolonged ranged and can be make it more useful by consuming more operational procedures and modules like Wi-Fi module, raspberry pi. Future scope of this robot is very efficient it may have gas sensors to detect the harmful or hazardous gases in the surroundings. It can also be used as bomb diffuser and bomb disposal team can also use this type of robot in many ways and reduces the risk factor of human loss. Further, a terminating framework can be set on the robot, to fire any foe when he is spotted.

The innovation can be enhanced further by offering directions to accepting circuit and control it by utilizing satellites correspondence. It will be utilized in shopping centers for pickup, drop trolleys and car vehicle painting. Likewise, the framework can be made android based, where all controlling should be possible through an advanced mobile phone. There is a light called halogen light, which is useful for the camera's vision, which is attached on the robot. This robot can also be controllable by giving commands through voice it will respond to the voice commands also.

CONCLUSION

In our system, we are presenting 'The Advanced Military Spying and Bomb Disposal Robot'. Using metal detector sensor we can remove landmines as well as we can defuse the bomb used by terrorists. It detects the signal, which is transmitted and according to that control robot in forward, backward, left turn, right turn movements. Metal/Bomb detector can detect the metals. The Wireless Bomb Disposal Robot uses a control application, at the user end to control the robot remotely using Wireless technology. The bomb technician controls the robot using this application at control site. Input from the user is transmitted over Bluetooth to the Receiver, where it is received, identified and given to the appropriate module (Robot) to act. The camera detects the exact location of the robot. In addition, we used ultrasonic sensor for measuring the distance range. Hence, in this work, we are tried to design a secure bomb disposal spy robot, which ensures several benefits. In this manner, our project plays a crucial role in Military as well as in our police department.

REFERENCES

- [1] V. Abilash¹, J. Paul Chandra Kumar² "Arduino Controlled Landmine Detection Robot" <http://ijesc.Org/upload/58c75b08e20d4f9694451a5f9e4dcd4b.Arduino20Controlled%20Landmine%20Detection%20Robot>.
- [2] Mehta, Mr. Lokesh, and Mr. Pawan Sharma. "SPY Night Vision Robot with Moving Wireless Video Camera & Ultrasonic Sensor."
- [3] Jenifer, T. Maria, et al. "Mobile Robot Temperature Monitoring System Controlled by Android Application via Bluetooth." International Journal on Advanced Computer Theory and Engineering (IJACTE) 2.3 (2013)...
- [4] Borker, Kunal, Rohan Gaikwad, and Ajaysingh Rajput. "Wireless Controlled Surveillance Robot." International Journal 2.2 (2014)
- [5] Bowcott, Owen. "UK opposes international ban on developing 'killer robots'". The Guardian. Archived from the original on 2015-07-29. Retrieved 2015-07-28.
- [6] Dhiraj Singh Patel. Mobile operated spy robot. International Journal of Emerging Technology and Advanced Engineering (IJETAEE); 2013.

[7] Arduino Controlled War Field Spy Robot using Night Vision Wireless Camera and Android Application, JigneshPatoliya, Haard Mehta, Hitesh Patel, 2015 5th Nirma University International Conference on Engineering (NUiCONE)

[8] Wireless Bomb Defusing Robot with camera interfacing Prof. Vaibhavjoshi, SonaliKatore, Yogini Bhandare, AmolKanade. #Department of Electronics and Telecommunication SITRC, Nasik, SPPU.

[9] Arduino Military Spying and Bomb Detecting Robot Sonali R. More¹, Priyanka P. Togarge¹, Amruta P. Shetkar¹, Prof.A.R.Dumne ² BE Student, Dept. of Electronics Engg, STME'S Latur, Maharashtra, India¹ Assistant Professor, Dept. of Electronics Engg, STME'S Latur, Maharashtra, India².

[10] Military robots of the present and the future, AARMS TECHNOLOGY Vol. 9, No. 1 (2010) 125–137

[11] Peterson, J.K. Understanding surveillance technologies: spy devices, privacy, history & applications. Auerbach Publications. 2007.

[12] Rohan Gaikwad, Boarkar, Kunal, and Ajay R “Wireless Controlled Surveillance Robot” International Journal 2.2 (2014)

