

Article

Very long Range of Detective Robot in Army Operation

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A B S T R A C T

Robot is a basic that can be controlled with utilizing RF mode and with camera on the robot surface. By and large, the RF has the benefit of sufficient range up to 200 meters with appropriate radio wires and the proposed checking robot is omnidirectional that it can move in forward and switch bearings, observing robot additionally can guide it towards left and right course. This robot is fueled by 9V battery-powered battery. The bearing of the robot can be constrained by a RF remote. This can be pushed ahead and switch bearing utilizing outfitted engines of 60RPM. Also this robot can take sharp turnings towards left and right headings. we are utilizing LPC2148, DC Geared engines, RF Technology; L293D H-Bridge is utilized to drive the outfitted DC engine. The encoder persistently peruses the status of the switches, passes the information to the RF transmitter and the transmitter transmits the information.

Keywords: RF module, DC Motor, CCD (Charge Coupled Device)

Introduction

This type of robot can achieve trying and repetitive works for humans. It can have a very risky job and such unsafe job could be done by using small spy robot.

Methodology is the making, usage, and knowledge of tools, machines, method, systems or methods of organization in order to solve a problem or perform a specific function. It can also be referred for the collection of such tools, machinery, and procedures.¹

Technology has affected society and its surroundings in a number of ways. In numerous societies, technology has assist develop more improved economies and has permit the rise of a leisure class.²

The execution of this venture is to determine the issue of supplanting a human work with remote controlled omnidirectional checking robot with video bolster that totally controlled with remote system. The ongoing improvements in innovation which grant the utilization

innovation, for example, remote, utilizing remote it have capacities of speaking with one another.³

Wireless is a new technology, which has at its center the goal of eliminating wired connections between computers. Instead of connecting with wires, every appliance has little transmitters/receivers.⁴

This robot is to detect an object that is located at some distance within the range of RF transmitter with webcam. This robot builds a rotatable CCD sensor camera on top of the Spy Robot. For rotation of camera, the system uses a motor especially for camera. The webcam that have used is a camera which is feeds its images in real time to a computer or computer network, often via USB.⁵

Other than that, with this webcam the robot is all the more better on the grounds that as a security observation and there are likewise utilizes on locales like video broadcasting administrations and for recording social recordings. This robot additionally can move in forward and turn around bearings. Close to that it likewise can guide it towards left

and right bearings where the controller circuit and webcam is put it on the outside of robot (like vehicle controlled). Computerization is the present reality, where things are being controlled naturally, as a rule the fundamental undertakings of development, either remotely or in nearness.⁶

The idea of wireless controlled omnidirectional observing robot gadgets is utilizing the remote that is progressively solid these days; whenever on the planet today can be a reality. Expect a framework where from the handling picture (screen), the client could see the picture that show up in screen and chooses to take control the development by utilizing RF transmitter to see the hazardous territory.⁷

Construction and Working

Initially considering the entire system, we come across two different section, namely, transmitter section and receiver section.

This history of apply autonomy is entwined with the accounts of innovation, science and the essential standard of progress. Innovation utilized in figuring, power, even pneumatics and water power would all be able to be viewed as a piece of the historical backdrop of mechanical technology. The timetable introduced is in this manner a long way from complete. Mechanical technology presently speaks to probably the best achievement and is the single most prominent endeavor of humanity to deliver artificial, conscious being.

It is only in recent years that manufacturers are manufacture robotics gradually available and attainable to the general public. The focus of this timeline is to provide the reader with aall-purpose overview of robotics (with a focus more on mobile robots) and to give an indebtedness for the inventors and innovators in this field who have helped robotics to become what it is today.

Transmitter

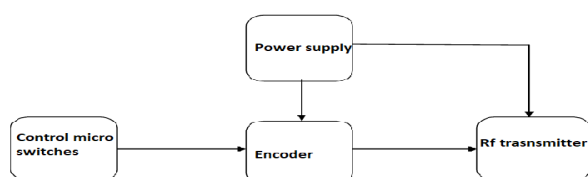


Figure 1.1 Remote Control (Transmitter)

In transmitter part a data encoder and RF transmitter are used. In transmitter section consist four push buttons to run the robot; these four buttons are connected with encoder with respect to ground. When we will press any button encoder will get a digital low signal and then applied this signal serially to RF transmitterthe encoder IC HT12E encodes data or signal or converting into serial form and then sends this signal by using RF transmitter into the environment. At the receiver end we have used RF receiver

to receive data or signal and then applied HT12D decoder. This decoder IC converts the received serial data to parallel and then send these decoded signals to motor drive IC. According to received data robots runs by using two dc motor in forward, reverse, left, right and stop direction.

Table I.1 Moving directions of push buttons

Push button	Moving direction
First	Left
Second	Right
Third	Forward
Four	Backward
No button press	Stop

Transmitter section: The RF transmitterSTT-433 is ideal for remote control applications where low cost and longer range is required. The transmitter operates from a AC 5-12V supply, making it ideal for battery-powered applications. The transmitter employs a SAW-stabilized oscillator, ensuring accurate frequency control for best range performance. The manufacturing-friendly SIP style package and low-cost make the STT-433 suitable for high volume applications.

Receiver

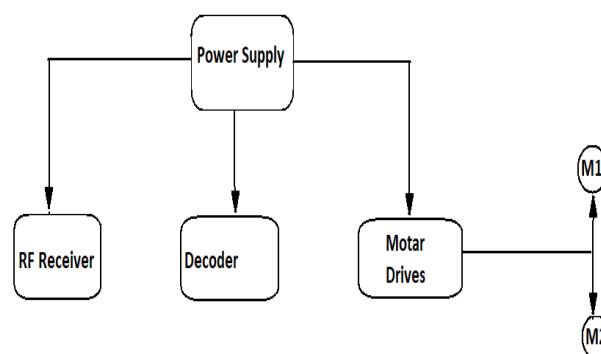


Figure 1.2 Robot (Receiver)

Receiver Section

The data is received by the RF receiver from the antenna pin and this data is available on the data pins.

Two Data pins are provided in the receiver module. Thus, this data can be used for further applications.

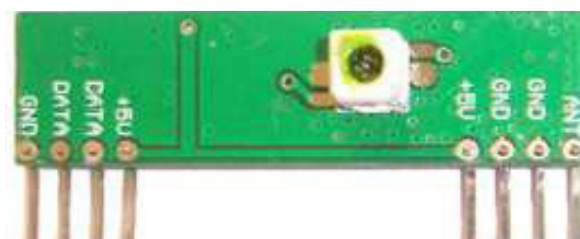


Figure 1.3 RF receiver str-433 MHz

In above figure 1.3:

ANT: Antenna input.

GND: Receiver Ground. Connect to ground plane. VCC (5V): VCC pins are electrically connected and provide operating voltage for the receiver. VCC can be applied to either or both. VCC should be bypassed with a .1 μ F ceramic capacitor. Noise on the power supply will degrade receiver sensitivity.

DATA: Digital data output.

Result and Discussion

A highly sensitive camera is also interlinked to capture the surrounding things and also to transmit to the remote place. The RF modules used here are STT-433 MHz Transmitter, STR-433 MHz Receiver, HT12E RF Encoder and HT12D RF Decoder. The three switches are interfaced to the RF transmitter through RF Encoder. The encoder continuously reads the status of the switches, passes the data to the RF transmitter and the transmitter transmits the data.

The robot senses the surroundings complete the CCD (Charge Couple Device) camera and sends to the receiver through the Radio Frequency wireless communication. We have already studied how to establish RF (Radio Frequencies) communication in RF Remote Control Circuit for Home Appliances post. This circuit is also designed using such kind of technology. HT12E RF Encoder and HT12D RF Decoder. The three switches are interfaced to the RF transmitter through RF Encoder. The encoder continuously reads the status of the switches, passes the data to the RF transmitter and the transmitter transmits the data.

At the end of this project, the system is expected to provide the transmitter that is the control unit and a receiver that can connect to the robot. Besides that, this wireless controlled robot can move in forward and reverse directions and able to steer it towards left and right direction. The expected result for wireless controlled omnidirectional monitoring robot with video support as below:

- To fabricate Transmitter circuit
- To design the prototype of project
- To fabricate receiver circuit

In terms of design, use of appropriate circuit components and can meet the expected features and specifications. This project has demonstrated how to get a fully functional to developed and to detect the image and record the video.

These programming that have used give more function to wireless controlled monitoring robot with video support which is successfully giving a good result.

Conclusion

This type of robot can perform difficult and repetitive works for humans. It can have a very risky job and such treacherous job could be done by using small spy robot. But it is useful to check and look out the places where perilous

poison gases have. Spy robot can also be used in penetrating people who are in building devastated by the earthquake. Because of the wireless camera is installed in spy robots, it can be used remotely to enter and exit treacherous place that human cannot. When the user controls by remote controller, the spy robot will move to desired destination and spy images around the robot.

As there are number of wireless know-hows are obtainable having dissimilar features, applications and limitations. From above analysis we conclude that it will be very useful if we use RF technology for wireless communication. These sources are easily available now days hence our proposed system become more cost effective and economical. Our proposed system will use oceanic research centers application for interfacing RF module.

References

1. Farrukhehtisham. performance evaluation of secure video transmission over wimax", international journal of computer networks & communications (ijcnc) 2011; 3(6).
2. Bekey G, Yuh J. The status of Robotics: Part I, *IEEE Robotics & Auto-mation Magazine* 2007; 14(4): 76-81.
3. Niku SB. Introduction to Robotics: Analysis, systems and Applications, Prentice Hall, New Jersey 2001.
4. Carlo S. Regazzoni Gianni Fabri Gianni Vernazza. Advanced video based surveillance systems" Page 148.
5. Aghajan H, Cavallaro A. Multicamera Network. Academic Press is an imprint of Elsevier. Inc., 2009: 239-497.
6. Bekey G, Yuh J. The status of Robotics: Part II, *IEEE Robotics & Automation Magazine* 2007; 14(4): 76-81.
7. Dubowsky S, Genot F, Godding S et al. PAMM A Robotic Aid to the Eldery for Mobility Assistance and Monitoring: A Helping-Hand for the Elderly, *IEEE International Conference on Robotics and Automation* 2000.
8. Khan MA. rf based wireless fire security system for hospitals. *ssu res .j. of engg. & tech* 2012; 2(1).