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War Field Spying Robot With Night Vision Camera

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Abstract:

The main purpose of developing this robot is for monitoring human activities. To war zone or rescue operation reduce enemy side attacks. The robot has a night vision wireless camera which can broadcast war zone videos order to avoid any damage and loss Human life. Military men are at great risk. Their lives when entering the unknown region. The robot will act as one suitable machine for defense area Reduce the loss of human life and also prevent illegal actions. It will all help to get to know the military people and the armed forces Its position before entering the territory. It can also be used in various defenses man power and operations to save examine the dangerous situation. The main advantage of this project is that we can easily control the robot using Android mobile via. Smart cell IP is a phone with web cam application mounted on a robot body for espionage. Aim even in complete darkness using Infrared light this will send the video wirelessly on the transmitter side (laptop). This type of robot can be useful for espionage intended to and from the battlefield Reduce attacks.

Keywords **—Night Vision Camera, Surveillance, Microcontroller, Solar Panel, Battery.**

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I. INTRODUCTION

With the development of state-of-the-art technology that uses advanced robots with advanced theoretical control features in modern technology around the world the robotic field is growing rapidly and some of the most popular robotic products are used by industry, defence,

academic societies and research. The test robot as its name suggests is the one used for the purpose of surveying and monitoring enemy territory. The needs of the situation in this situation is a robot that finds itself every minute on the border and reports to the board control unit nearby, the Robot plays a very important role in helping people, some robots will replace man, some robots will act as auxiliary devices. Similarly in our paper the robot will serve as a tool to assist the soldier in the field of surveillance and surveillance. During the war when it can be used to collect, data and images from the enemy area and monitor that information in any area affected by disruption to make disaster management such as search and search for people, when people will not be able to go to places like the sea, mine and as robots gain more reliability and are made smaller things that one can easily find. Currently international border crossings are a very challenging task. In our paper we use a remote monitoring system and can be developed using a wireless network to control the test robot can be made specifically in various fields such as industrial Banks and supermarkets.

All of that we use a wireless camera mounted in the form of a robot circuit and the camera can be switched on with 360-degree photographs and video monitors and transfer these photos and videos, which are in the control area. So let's have a brief idea of how we can use the robot in military companies for experimental purposes. We can design a simple, easy-to-use remote control field and the images sent by the camera can be viewed and analyzed on an LED display. The battlefield robot contains an Arduino UNO board as a control board.

It has an L293D IC car driver and an ESP-8266 Wi-Fi module. Wi-Fi technology can be used to share data between two devices considering the distance between two devices. Two or four DC motors are also used for robot movement. The Android app with Google is used to control the robot using a remote monitor. Mining Discovery Sensor and fire detection sensor are used. The metal sensor is used to determine the size of the metal objects.

II. LITERATURE REVIEW

A. Wireless Camera

Wireless security cameras are enclosed television cameras (CCTV) that transmit video and audio signals to the wireless receiver via a radio band. Most wireless security cameras require at least one cable or power cord; "wireless" means video / audio transmission. However, some wireless security cameras are powered by a battery, making wireless cameras truly from top to bottom.

Wireless cameras are showing great popularity for modern security consumers due to their low installation costs (no need to use expensive video cords) and flexible input options; wireless cameras can be installed / installed in areas that were not available on standard wireless cameras. In addition to ease of use and easy accessibility, the wireless security camera allows users to use broadband internet wireless to provide offline video streaming.

Fig.1. Camera

B. Snubber Circuits for Diode

Snubber circuits are important on diodes used to switch circuits. It can protect the diode from overvoltage spikes, which may occur during the reverse process. The most common snubber circuit for power dynamics consists of a capacitor and Resistor connected similarly to a diode.

Fig.2. Snubber Circuit

C. Charge Controller

The charging controller, charge controller, or battery controller limits the rate at which power is plugged in or pulled out from electric batteries. It prevents overchargeing and may prevent power outages, which may reduce battery life or service life and may pose a safety risk. It may also prevent the complete discharge ("deep discharge") of the battery, or perform a controlled discharge, depending on the battery technology, to protect the battery life. The term "charging controller" or "charge controller" may refer to a standalone device, or to control circuits integrated within a battery pack, a battery-powered device, or a battery charger.

D. Wheels

Wheeled robots are robots that navigate around the ground the usage of motorized wheels to propel themselves. This design is simpler than using treads or legs and by using the use of wheels they are simpler to design, build, and software for motion in flat, now not-so-rugged terrain. They may be additionally greater nicely controlled than different kinds of robots. Dangers of wheeled robots are that they can't navigate nicely over limitations, along with rocky terrain, sharp declines, or regions with low friction. Wheeled robots are maximum popular some of the client market, their differential steering presents low fee and simplicity. Robots may have any number of wheels, but three wheels are enough for static and dynamic stability. Extra wheels can upload to balance; however, extra mechanisms might be required to maintain all of the wheels inside the ground, when the terrain isn't always fla

Fig.3.Wheel

E. Motor driver

A drive is an electronic device that binds and controls electrical energy transmitted to a car. The drive supplies electricity to the car at various prices and at different frequencies, thus indirectly controlling the speed and torque of the car. Together, the car and the drive form the “driving system.”

F. Solar panel 10 watt

The 10W 12Volts 36-cell Solar Panel (41 x 30 cm) for DIY Projects is ready for use without the need for a frame or special adjustments. We have chosen to sell these Polycrystalline solar cells because they have been cut by Laser in the right size and placed in the sun and in weather-resistant materials that offer different features. The 12v 10W mini Solar Panel has Polycrystalline solar cells installed and protected by a solid poly outer frame. This 3v 150mA mini Solar Panel for DIY Projects is simple, powerful and does not tolerate weather or custom-made molded trays designed for the intended product. These small Epoxy Solar Panels are easy to install or incorporate into your existing product and their construction does not require a special frame or modification. Polycrystalline solar cells are two to three times stronger than amorphous thin-film solar panels. Very little space is required to install and connect the 12v Solar Panel, which is solder or crimp on copper tape.

Fig. 4.Solar Panel

G. Dummy shaft

The Motor is designed in such a way that it represents the axle size and shape of a real car but is artificial as it is only used as a basis for repairing weak wheels on a robotic chassis. You can also connect a 6mm <=> 4mm Coupling to connect 4mm wheels to it. These engines are used to attach a wheel like a real car. Use where you do not need the wheels enabled. For example for a four-wheeled robot (like a car) you can use two motors on the back which is the power on the robot while attaching 2 weak wheels to the front using a motor.

Fig. 5.Dummy Shaft

H. Motor Drive Module

The MDD3A is capable of controlling two DC-powered engines or a single bipolar / unipolar stepper motor from 4V to 16V. With the design of MOSFETs H-Bridge, this car driver is able to support 3 Amp per station continuously without additional heating. On-board test buttons and LED output LEDs allow for a quick and easy test of the driver's performance without connecting the controller. A Buck-boost controller that produces 5V output of less than 4V inputs can be used to enable the host controller. MDD3A can be controlled with a logic voltage range ranging from 1.8V to 12V, compatible with a variety of host controllers (egArduino, Raspberry Pi, PLC). To protect the motor vehicle from damage by repeated electricity if the battery is connected to the wrong polarity, it is fitted with reverse polarity protection. This is a very common mistake made by many makers even for the most experienced.

Fig .6.Motor Drive Module

I. Buck Converter

The XL4015 5A DC-DC Step Down Adjustable Power Supply Buck Module is a 180 KHz standard PWM buck (step-down) DC / DC module, capable of driving 5A load with high efficiency, low explosion, and excellent line-up with regulation.

DC / DC buck module has applications where the input voltage exceeds the output power, such as battery, power supply, DIY-controlled power converter, LCD Monitor and LCD TV portable phone / communication equipment, 24V power supply of car stationery, industrial deer equipment.

This module has various output capabilities. It also works as a dedicated charger for Lithium Batteries (Li-Ion, LiPo) as it can control electrical power. Eg. 12V buck to 3.3V, 12V buck to 5V, 24V buck to 5V, 24V buck to 12V, 36V buck to 24V, etc.

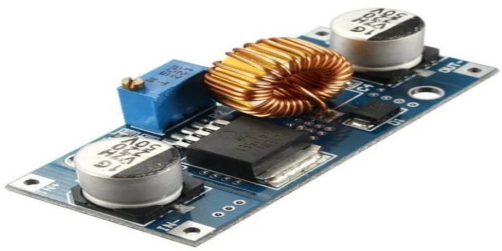

Fig.7 Buck Converter

III. SYSTEM MODELLING

A. Block Diagram

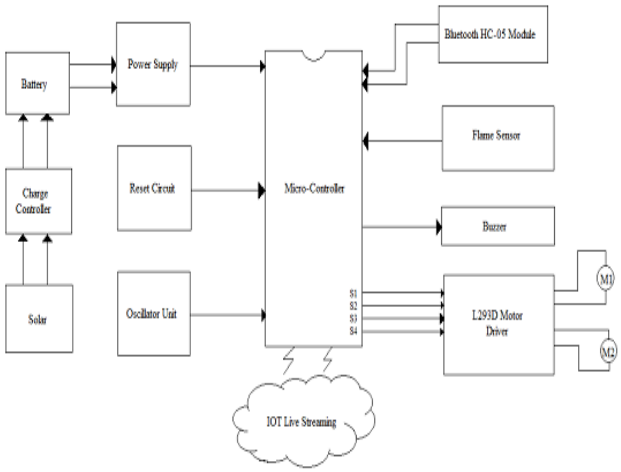

Fig.7 Block Diagram

B. Component Design

1. PCB Design

We design PCB on Zuken software, then we printout the diagram on paper. Then we print that diagram on copper clad sheet. After that we doneeaching procedure on copper clad sheet. And then we drill that PCB and test it. In this way we design the PCB.

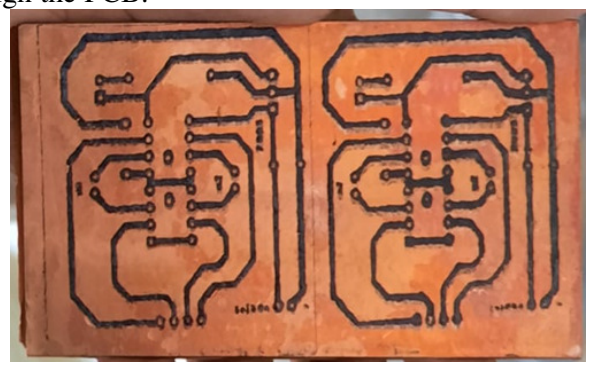

Fig.8 PCB Design

2. Designing the Arduinoprogramming

We use IDE software for programming.Integrated Development Environment (IDE) is a software application that provides a wide range of software for software development software. IDE usually contains at least a source code editor, default building tools and debugger. Some IDEs, such as NetBeans and Eclipse, contain the required link, interpreter, or both; others, such as Sharp Develop and Lazarus, do not.

3. Result

Fig.9 Actual Model

IV. CONCLUSIONS

War Field Robot to make it easy to use. The spy robot can easily capture images, videos and wireless transmissions at the same time, thus giving soldiers the opportunity to get help with dangerous situations at the end of the receiver, these fixed signals are provided as a driving license. This helps the troops to visualize current events and to organize their heads accordingly. This machine can move calculations in the direction of traffic primarily based on inputs that tend to use command of the remote phase unit.

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