WAR FIELD SPYING ROBOT USING NIGHT VISION WIRELESS CAMERA

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Abstract
The main objective behind developing this robot is for the surveillance of human activities in the war field or border regions in order to reduce infiltrations from the enemy side. The robot consists of night vision wireless camera which can transmit videos of the war field in order to prevent any damage and loss to human life. Military people have a huge risk on their lives while entering an unknown territory. The robot will serve as an appropriate machine for the defense sector to reduce the loss of human life and will also prevent illegal activities. It will help all the military people and armed forces to know the condition of the territory before entering it.

Introduction

The advent of technology has brought a revolutionary change in the field of robotics and automation which ranges in all the sectors from household domestic works to the defense sector. Today in the global market, smart phones also have brought a revolution in changing people's lifestyle and providing numerous applications on different operating systems. Android operating system is one of these systems build on open source which has made a huge impact providing many applications robotics to help people in their day to day life. [1]

The main technology used here for serial communication with the robot is the WIFI technology can be used to share data between two devices considering the range between two devices.
The WIFI module will be connected with the robot and the commands to the robot will be given through the android application. [1]

The war field robot consists of Node MCU board as a controller board. It has L293D motor driver IC' s. The WIFI module is inbuilt along with the Node MCU board .Two DC motors are also used for the motion of the robot.

The night vision wireless camera is attached with the robot in order to monitor the situation and the camera can be rotated 360 degrees via the android application through motor.

Node MCU Board

It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espressif, and hardware which is based on the ESP-12 module. The term "**Node MCU**" by default refers to the firmware rather than the dev kits. The firmware uses the Lua scripting language. The Node MCU (Node Micro Controller Unit) is an **open** source software and hardware development environment that is built around a very inexpensive System-on-a-Chip (SoC) called the ESP8266. Usable pins. The

ESP8266 has **17** GPIO pins (0-16), however, you can only use **11**of them, because **6 pins** (GPIO 6 - **11**) are used to connect the flash memory chip.
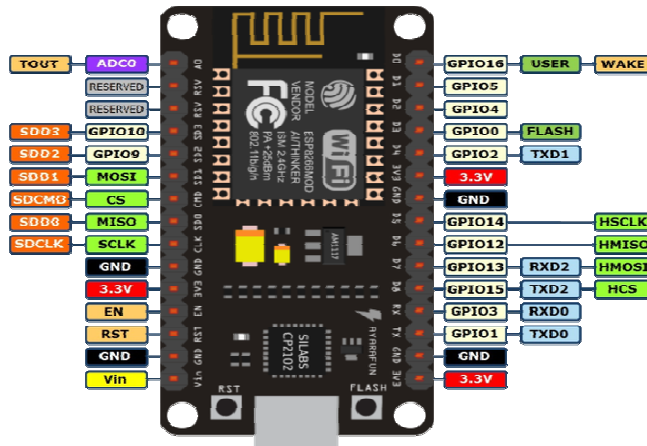

WIFI Module

The ESP8266 WiFi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor.

L293D

L293D is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. L293D is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. It means that you can control two DC motor with a single L293D IC. Dual H-bridge Motor Driver integrated circuit (IC). The L293D IC receives signals from the microprocessor and transmits the relative signal to the motors. It has two voltage pins, one of which **is used** to draw current for the working of the **L293D** and the other **is used** to **apply** voltage to the motors.
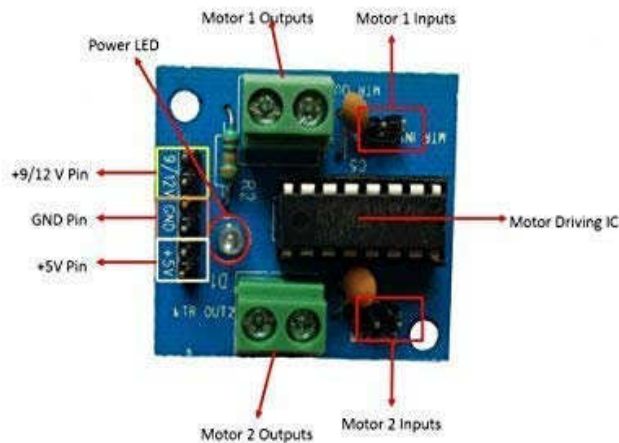
WIFI IP Camera

Ethernet cable to a broadband An Internet Protocol camera, or IP camera, is a type of digital video camera that receives control data and sends image data via the Internet. ... Most IP cameras are webcams, but the term IP camera or netcam usually applies only to those used for surveillance that can be directly accessed over a network connection. IP cameras capture images in much the same way as a digital camera, and compress the files to transmit over the network. IP cameras may be used with a wired network connected via modem or router, or wirelessly via a WiFi router.

Related Work

A Bluetooth-based Architecture for Android Communication with an Articulated Robot An Articulated Robotic Arm which is used in Industry was proposed by Sebastian van Delden and Andrew Whigham. It can be controlled by an android device in an industrial fixed setup. It can pick and place, and do some wielding works which human can't do. By using the device control we no need to reprogram for every time we use the robot for different works. It can connect various types of other robot too for controlling them. In industrial robotic environments there are many different robots performing a variety of tasks. Each robot is controlled by its own teach pendant or via a networked socket application. However, to monitor the status or make minor changes to the programming of the robot, the user must obtain access to the pendant or terminal. In an effort to eliminate this need, this paper introduces an android platform that communicates with robots over a Bluetooth connection

Android Application

Android is a very familiar word in the world today. Millions of devices are running the Google Android OS and millions are being developed daily. Google has made the Android development platform open to everyone around the world, so there are millions of developers. Although some developers just focus on building the apps or games for the android devices, there are numerous possibilities as well.
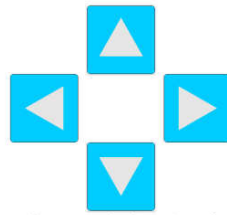
Software Tools
Arduino

For writing code in assembly and simulation of code, Arduino software plug-in to write code in C.

Compilers: IAR, Image Craft.

Code Vision Arduino Program type: Application

Clock frequency: 7.372800 MHz

Memory model: Small

Applications

- Military operations.
- Surveillance along border.
- Search and Rescue Operation.
- Maneuvering in hazardous environment.

Future Enhancement

The robot can be made more miniature in size. To increase the range many other modules such as Zigbee can be used.

In future, the robot may also consist of gas sensors to detect the poisonous gases in the environment. The robot may also include a bomb disposal kit in order to diffuse bombs in the war field.

Conclusion

In this paper, the model of robot can be described to build a robot using night vision wireless camera run by android application and the people can learn about developing android application in order to control the robot through wireless application using the platform of MIT app inventor. The robot can be made more enhanced by adding features like gas sensors and bomb defuse kit.

Acknowledgement

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