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ANDROID APP BASED WAR FIELD SPYING ROBOT WITH WIRELESS NIGHT VISION 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. Earlier the robots were controlled through wired networks but now to make robot more users friendly, they are framed to make user commanded work. Therefore to attain the requirements we can use android as a multimedia to control the user friendly robot. It will help all the military people and armed forces to know the condition of the territory before entering it.

Keywords: Spying Robot, Android APP, military Application, multimedia.

I. INTRODUCTION

With the aim of developing a high-tech technology that serves high speed technology, advanced capacity to control the robots and to devise new methods of control theory. The realize above standards some technical improvement along with the need of high performance robot is required to create a faster, reliable, accurate and more intelligent robot which can be devised by advanced technology, robot control devices and new drivers. Earlier the robots were controlled through wired networks but now to make robot more users friendly, they are framed to make user commanded work. Therefore to attain the requirements we can use android as a multimedia to control the user friendly robot. The spying robot as its name suggests in the one used for the purpose of spying on enemy territories.

Its applications can be:

- At the time of war where it can be used to collect information from the enemy terrain and monitor that information at a far secure area, and safely devise a plan for the counter attack.
- Tracking locations of terrorist organizations and then plan attack at suitable time.
- Making a surveillance of any disaster affected area where human beings can't go.

II. OBJECTIVES

- Serve as distant monitoring and controlling device to check any suspicious packet or action.
- To allow the user to manipulate the suspicious packet using the robotic arms.
- To give visual display from suspicious place.
- To make the controlling of the robot such that it can be controlled very easily.
- serves as a control application, at the user end to control the robot from some distance using wireless technology.

III. BLOCK DIAGRAM

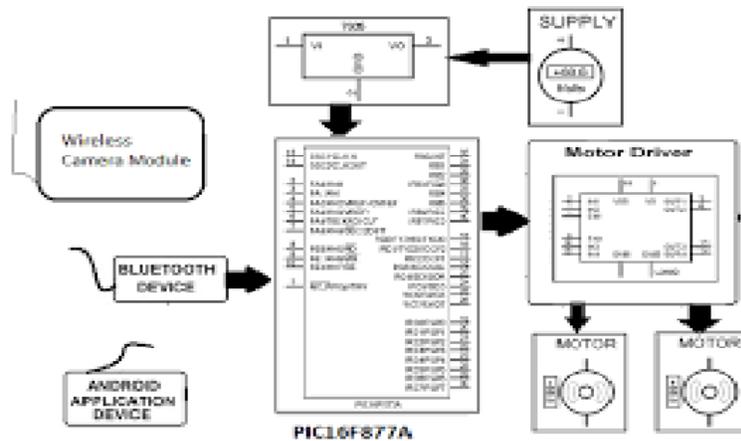


Figure: Block diagram of the system

Block Diagram Description

The Bluetooth module interfaced with the PIC microcontroller will receive characters as data from the host. TX[1] and RX pins of PIC IC are connected to the Bluetooth module. The PIC microcontroller is programmed in such a way to produce outputs for the motor driving IC so as to make required motion by the motors. The L293D will produce output as per the input obtained from the PIC microcontroller. And one of the output pins of PIC microcontroller is connected to the relay for the switching purpose of the night vision camera. If we are using an android device for the controlling purpose, we have to pair the HC-05 Bluetooth module with our smart phone. After pairing we have to open the SPY-BOT application in our smart phone and wait for a second to establish connection between the smart phone and HC-05 Bluetooth module. Once connection is made successfully we can start controlling the robot by touching on the buttons on your Smartphone's screen.

The night vision camera in this project is also having a wireless connectivity. By using a Smartphone we can see the visuals in it. When the camera is in dark area the IR lights are turned on and produces night vision visuals on our smart phone.

IV. HARDWARE DESCRIPTION

Bluetooth Module:

- HC-05 is a Bluetooth module which is designed for wireless communication. This module can be used in a master or slave configuration.



- HC-05 has a red LED which indicates connection status, whether the Bluetooth is connected or not. Before connecting to HC-05 module this red LED blinks continuously in a periodic manner. When it gets connected to any other Bluetooth device, its blinking slows down to two seconds.
- This module works on 3.3 V. We can connect 5V supply voltage as well since the module has on board 5 to

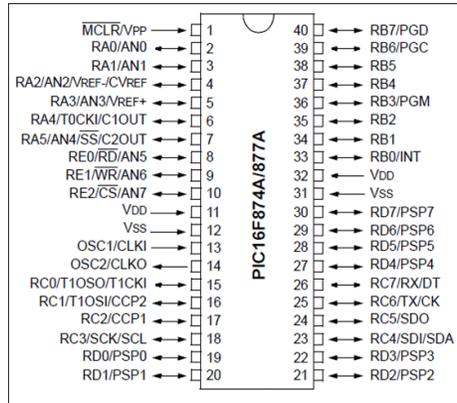
3.3 V regulator.

- As HC-05 Bluetooth module has 3.3 V level for RX/TX and microcontroller can detect 3.3 V level, so, no need to shift transmit level of HC-05 module. But we need to shift the transmit voltage level from microcontroller to RX of HC-05 module.

PIC 16F877A Microcontroller:

The microcontroller IC of the PIC 16F877A is one of the most used microcontrollers of the era. This controller IC is very easy for use and programming the controller is also relatively easier when compared with other microcontrollers. One of the main advantages of this microcontroller is that it provides RAM memory which can be rewritten as many times as the user desires. PIC 16F877A is used in many PIC microcontroller projects. PIC 16F877A IC also have many applications in embedded electronic circuits.

- It has a total number of 40 pins and there are 33 pins for input and output in which specifically there are 5 ports named as A , B , C , D and E.
- A port has 6 pins, B, C and D ports have 8 pins each. Port E has 3 pins. Function wise there are 8 analog pins, 2 UART pins, 2 PWM pins.
- Apart from all this, PIC controller comes with inbuilt ADC.
- The IC works on 12 MHz of frequency that is supplied by crystal.



Night Vision Camera:

- For video transmission we will use a pair of mobile phones one each at transmitter and receiver.
- The mobile phone at receiver end will record video and sent it in real by an android application through internet to transmitter.
- For night vision purpose we will use infrared LEDs.

V. APPLICATIONS

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

VI. FUTURE ENHANCEMENT

The robot can be made more miniature in size. One of the limitations of this robot is the range of the robot. The Bluetooth module used here has a limited range and thus this robot cannot be operated over far distances. To increase the range many other modules such as Wi-Fi and 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.

VII. CONCLUSION

The robotic vehicle is equipped with a wireless camera having night vision capability for remote monitoring/spying purposes. The system is a simple one which makes it easy to design and maintain. It can be used in environments like forests and other places where humans cannot possibly enter during the night. At the time of war where it can be used to collect information from the enemy and monitor that information at a far secure area, and safely make plans for the counter attack. The range of controlling is limited in Bluetooth range.

VIII. ACKNOWLEDGEMENT

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