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Spying Robot (Military Purpose System)

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Abstract: The intention of this system is to reduce human victims in terrorist attack such as 26/11. So, this problem can be overcome by designing the RF based spy robot which involves wireless Devices, So that from this it will be easy to examine rivals when it required.
This robot can quietly enter into enemy area and sends us the information via wireless Devices. Robotics has been a staple of advanced manufacturing for over half a century. As robots and their peripheral equipment become more sophisticated, reliable and miniaturized, these systems are increasingly being utilized for military and law enforcement purposes. Now-a-days android smart phones are the most popular gadget. There are multiple applications on the internet that exploit inbuilt hardware in these mobile phones, such as Bluetooth, Wi-Fi and ZigBee application control.
Here we have designed a robot that can be controlled using an application running on an android phone. It sends control command via Bluetooth which is interfaced to the controller. The controller can be interfaced to the Bluetooth module though UART protocol. According to commands received from android the robot motion can be controlled. And hence the required actions can be taken. But object tracking is one of the major fundamental challenging problems in computer vision applications. This project presents a helpful application with a real-time object detection system that can automatically capture the user-defined important objects.

Keywords: Bluetooth module HC-05, Metal Sensor for metal detection, Temperature Sensor for temperature Detection, Ultrasonic Sensor for obstacle detection, Data transparency.

I. INTRODUCTION

The military is undeniably the primary customer of new advances and improvements in strategy, and is also often the sponsor of new improvements when it comes to envisioning new innovations in military settings. Numerous basic military technologies deployed out of the blue are now advanced to the piece of industrial robots. In any case, the importance of military autonomy and modern mechanical autonomy is still quite different. The military has special, robotic equipment. In modern terms, the robot is a larger amount of a smart, adaptable, large-scale manufacturing machine. Later, the use of modern robots for military applications will always be imaginable. We are implemented a solution for the problem of replacing a soldier with a Robot Soldier completely controlled with a wireless network. The whole system is controlled via android application. The Bluetooth device and microcontroller which will receive commands sends by the android application. The system sends commands to the receiving circuit mounted on the vehicle through android application. The android application involves commands like forward, backward, right and left direction to control the robotic arm. Thus, this application involves both Robotic arm and Robotic vehicle so that the system can not only be used to enter into high risk area but also to pick, move and place whichever objects it wants to. Each and every movement of the vehicle will be recorded and can be viewed in a PC wirelessly. We can make use of advanced controller in controlling the operation of robot. It can have many uses in practical fields. This system can be helpful in wars as a part of spying.

II. PROJECT SPECIFICATIONS

The robot should capture the current situations and transmit it to server and its range is 20cm to 200m.
1. Bluetooth module is used for transmitting information and range is generally from 20cm to 200m
2. It will detect metal using metal detector from range of 8-16 inches.
3. After detection of mine it will diffuse the mines in the range of 8-16 inches
4. It should evaluate the environment and should check the presence of toxic gases.
5.Ultrasonic sensors used for detection of object nearby vicinity from 4mm to 4m and is used to control the motion of the robot.

III. LITERATURE SURVEY

Due to the less and rare technology available for bomb disposal operation the demand for wireless technology used for

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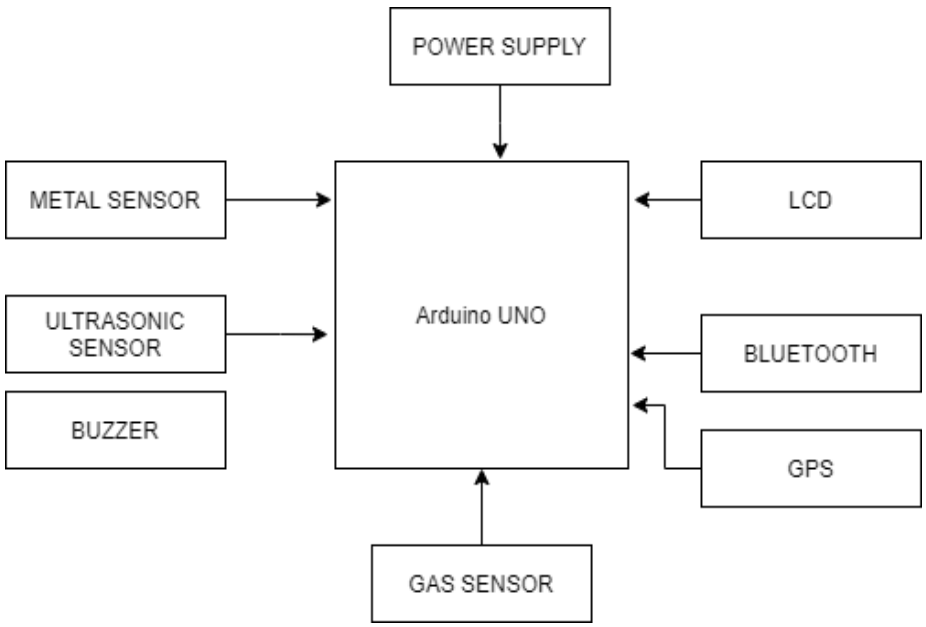
military spying and bomb disposal purpose is very beneficial. This program uses Bluetooth connection to communicate with robot. It has proven to allow for meaningful two-way communication between the Android phone and the robot The Multi-Purpose Military Service Robot has been designed in such a way that it can fulfill the needs of the military, the police and armed forces. The robot will move depending on the motor direction. With the help of the camera we are able to view the things that are happening in the surrounding area where the robot is hidden. As per the present scenario, human dependencies on technology and future trends robots are going to be used as a perfect replacement for human being in all aspects of life.

IV. METHODOLOGY



Block Diagram Explanation:

1. Arduino: The arduino controls all the system. It is used to interface various sensors, LCD, Bluetooth terminal etc.
2. Power Supply: It is used to supply power to the system.
3. Metal detector: It is use to detect metal object and send message to the controller. It is specially used for bomb detection
4. Gas Detector: It is used to detect the gas present in surrounding
5. Bluetooth: These are used as a medium between controller and servers.
6. Server, app: These are used to controller the motion of the robot and also used to check the detail given by the detectors and camera.
7. Temperature Sensor: It is used to detect the present temperature.
8. Ultrasonic sensor: It is used to calculate the distance between the object and robot.
9. Switch: It is used to control the movement of robot.

V. HARDWARE SPECIFICATION

1. Android smart phone

2. Bluetooth module:
The Bluetooth module HC-05 consists of six pins. The six pins Key,5V, GND, Tx, Rx, Status. The bluetooth module has two devices
i) master device
ii) slave device.

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One device connects to the master while the other device connects to the slave. The connection between the devices takes place as follows:
One of the pin Tx is connected to pin Rx of the arduino board while the pin Rx of bluetooth module is connected to the Tx pin of arduino. Thus, in a way cross-connection is required for the operation of bluetooth module. The GND pin is given to the GND pin of arduino and power supply pin of arduino is given to the pin of power.
In order to have proper communication, the master device must be connected to the slave. Once the pairing is done between two devices, the device will ask to enter the password. The password will be either 0000 or 1234. Enter the password and both the devices will be connected to each other.

3. DC power supply:
12V and 5V dc supply will be used.

4.Arduino:
Microcontroller: ATmega328P – 8-bit AVR family microcontroller
Operating Voltage: 5V
Recommended Input Voltage: 7-12V

5. Motor Driver:
The L293 and L293D are quadruple high-current half-H drivers. The L293D is designed to provide bidirectional drive currents of up to 600-mA at voltages from 4.5V to36V. The L293D IC has sixteen pins. There are four input pins and four ground pins. Two motors are connected between the four output pins.

6. DC motors:
The speed of step execution controls the rate of motor rotation. A 1.8° step motor executing steps at a speed of 200 steps per second will rotate at exactly 1 revolution per second. Stepper motors can be very accurately controlled in terms of how far and how fast they will rotate. The number of steps the motor executes is equal to the number of pulse commands it is given. A step motor will rotate a distance and at a rate that is proportional to the number and frequency of its pulse commands.

7. Metal Detector: Fully automatic self-adjusting circuit. Effectively detects minute quantities of gold, silver, platinum, brass, copper, mild & stainless steel. Ultra-high sensitivity and stability. Large scanning area. Very quick & clear response to metal objects.

8. Smoke Detector
Height: 47mm(mounted in B401 base)
Diameter: 102mm
Weight: 105g

9.Temperature Sensor: It is used to detect the present temperature.

VI. SOFTWARE SPECIFICATION

1. Programming software: Arduino
The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino and Genuino hardware to upload programs and communicate with them.

2. Simulation software: Proteus
The Proteus Design Suite is a Proprietary software tool suite used primarily for electronic. Design automation. The software is used mainly by electronic design engineers and technicians to create schematics and electronics prints for manufacturing printed circuit boards. The Proteus Design Suite is a Windows application for schematic capture, simulation, and PCB layout design.
Features:
1. Real-time data across an organization or enterprise from underlying sources.
2. Extremely secure with full user and database security layers.
3. One source for editing, analysis and verification of data from multiple sources.
4. Extends functionality of underlying application.

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3.Bluetooth Terminal App:
It is used for giving instructions for move the robot.

VII. ADVANTAGES AND APPLICATIONS

Advantages:
1. The robot is small in size so can be used for spying.
2. Military robots are autonomous or remote-controlled devices or robots designed for military application.
3. Robots could reduce the number of military personnel injured or killed in combat situations.

Applications:
1. It can be uses for search & rescue type operations.
2. In bomb defusing.
3. It is also use this robot for animal tracking in forest.
4. This robot can be used in the borders for disposing hidden land mines.
5. The robot can be used for surveillance or reconnaissance.

VIII. CONCLUSION

Smart phone is android which can develop effective remote -control program. At the same time, this program uses Bluetooth connection to communicate with robot. It has proven to allow for meaningful two-way communication between the Android phone and the robot The Multi-Purpose Military Service Robot will be designing. in such a way that, it can fulfill the needs of the military, the police and armed forces. It has countless applications and can be used in different environments and scenarios. For instance, at one place it can be used by the armed forces, military purposes, while at another instance it can be used for spy purposes. It will also be able to diffuse the mines after detecting it.

REFERENCES

1. War Field Spying Robot
International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor :6.887
Volume 5 Issue XII December 2017
Author: Priyanka Yadav, LeenaChaudhari, Swati GawhaleBharatiVidyapeeth College of Engineering, Lavale, India.
2. Arduino Controlled War Field Spy Robot using Bluetooth connectivity and Android Application Conference Paper · November 2015DOI:10.1109/NUICONE.2015.7449624
Author:Jignesh Patoliya1, Haard Mehta2, Hitesh Patel, V. T. Patel Charotar University of Science and Technology, Changa, Anand, Gujarat,India.
3. Smart Spy Robot ISSN: 2278 – 7798 International Journal of Science, Engineering and Technology Research (IJSETR) Volume 5, Issue 4, April 2016 973 All Rights Reserved © 2016 IJSETR.
Author: Ankit Yadav, AnshulTiwari ,Divya Sharma, Ratnesh Srivastava, Sachin Kumar,
IMS Engineering College, Ghaziabad
4. Military Spying and Bomb Disposal Robot Using IOT. International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 05 Issue: 04 | Apr-2018 www.irjet.net p-ISSN: 2395-0072.
Author:ChaitraliJadhav, ShamliGibile, Snehal Gaikwad, Neelum Dave DIT, Pimpri
5. Multi Purpose Military Service Robot. International Conference on Electronics, Communication and Aerospace Technology ICECA 2017.
Author:E Amareswar, G Shiva Sai Kumar Goud, K R Maheshwari, E Akhil, S Aashraya, T Naveen,MLR Institute of TechnologyHyderabad, India