Robotic Soldier with EM Gun using Bluetooth Module

AshteshDivakar[1],Prathamesh Rane[2],Rahul Bane[3]

ABSTRACT

Need for security is growing day by day due to enormous development in the field of technology, but man wants to achieve this security at the minimum cost and minimum risk to human life. This is the factor which has encouraged us to develop this project which can achieve security at minimum risk to human life and at minimum cost. Here instead of exposing the soldier to do the hazardous job such as dangerous gas or hostile environment detection we have designed a machine which will do the same job more efficiently.

This robot will be self-sufficient to sense the temperature of surrounding, and detecting if any obstacles are there at a certain distance depends on that robot guiding itself using the efficient algorithms and proper sensors.

Index Terms:

Bluetooth module hc-05 ,DC Motor ,Microcontroller– AT89S52 ,MAX 232

I.   INTRODUCTION

Android controlled robot project make use of an Android mobile phone for robotic control with the help of Bluetooth technology. This is a simple robotics projects using microcontroller. We have already seen Mobile Controlled Robot using DTMF technology which uses call based method to control robot. Also many wireless-controlled robots use RF modules. The control commands available are more than RF modules. Smartphone controlled robot is superior than all these robots.

This project is a Bluetooth controlled robot. For this the android mobile user has to install an application on her/his mobile. Then user needs to turn on the Bluetooth in the mobile. The wireless communication techniques used to control the robot is Bluetooth technology. User can use various commands like move forward, reverse, stop move left, move right. These commands are sent from the Android mobile to the Bluetooth receiver. Android based robot has a Bluetooth receiver unit which receives the commands and give it to the microcontroller circuit to control the motors. The microcontroller then transmits the signal to the motor driver IC's to operate the motors.

Advantages :
- We can use voice controlled robot for various applications. We can move it clockwise, anticlockwise direction, forward and backward by giving voice commands.
- In industries we can control the machines by using robots.
- It is used in hazardous places where a human cannot reach.
- You can program the Robots to make them do exactly what you want them to do.
- They can also useful for physically handicapped persons through wheel chairs etc.

Disadvantages:
- They are very expensive to make as it costs money for several components used in various applications.
- They can be sometimes very hard to program according to the complexity of the application.
- It needs proper maintenance to keep it operating according to the commands by the user.

II.   Application

We believe such a system would find wide variety of applications. Menu driven systems like household appliances such as washing machines, microwave ovens, pagers and mobiles etc. will become voice controlled in the future. But this project is basically relating to change the conventional battle strategies. Also Robotic Soldier is capable of various technical upgrades in time if required i.e. it is dynamic in application.

- **Military Applications:**

Mobile robot's paly important role in military matter, dealing with potential explosives. "With suitable sensors and cameras to perform different missions, mobile robots are operated remotely for reconnaissance patrol and relay back video images to an operator.
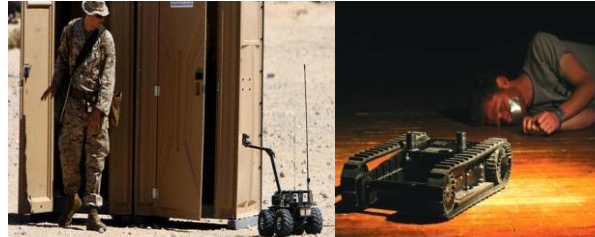

Fig .1: Military Applications

- **Home Automation:**

The popularity of home automation has been increasing greatly in recent years due to much higher affordability and simplicity through Smartphone and Tablet connectivity. The concept of the "Internet of Things" has tied in closely with the popularization of home automation.

Android based operation makes it versatile in all aspects , which brings in the use of same technology in **Home Automation** as well. This project has brought world towards the most recent technology the generation is not aware of .
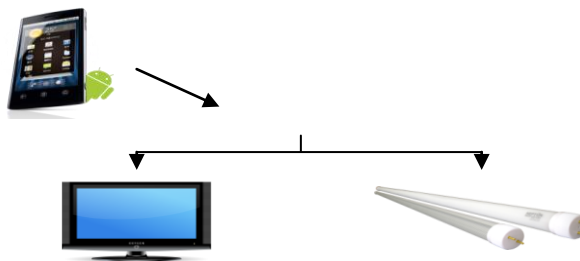

Fig2: Home Automation

- **Wheel Chairs:**

Based on our project the robot is controlled by giving a voice commands though android mobile. We can move wheel easily giving direction commands to android without hand movement.

Fig.3: Wheel chair Applications

- **Surveillance Device:**

Surveillance is the monitoring of the behaviour, activities, or other changing information, usually of people for the purpose of influencing, managing, directing, or protecting them. This can include observation from a distance by means of electronic equipment (such as CCTV cameras).
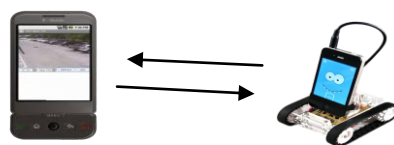

Fig.4 Surveillance Device

- **Industrial Purpose:**

Material handling is the most popular application with 38% of operational stock of industrial robots worldwide. This includes machine tending, palatalizing and various operations for metal machining and plastic mounding. In cement industries machines are operated by robots. To reduce the use of labours robots are used in loading purpose.

III.   Conclusion

The project generally symphasize on the use of Robots in order to make the human work simpler. Significantly they are also used at places inaccessible to the human beingswhich are very important. Thus the performance of operation is faster. The outcome of the report is a simple robot which is controlled by a smart android phone & also receives the voice commands. This report aims to provide simple guidelines for people interested in building robots

Although the report projects very little about the robot's use in real world, but with the help of guidelines and the abundance of resources the outcome could be very beneficial for many people in the world. People with physical limitations such as handicapped people could use the feature to their wheel chair from this report to compensate their abilities.

Future Scope :

The purpose of such robotic system is to help people with motor disabilities in controlling different widgets in daily life using mobile phone. The proposed idea can be expanded to control almost any device with Bluetooth receiver. In future we use a secured wireless channel using encryption and decryption. Consider larger bandwidth system should be onboard because video streaming service desired. Some of interfacing applications which can be made are controlling home appliances, robotics movements, Voice Assisted technologies, voice to text translation, and many more. In future industries, home automation, agriculture is also being developed by Robotics. To reduce the labour workload on humans and to reduce the time of operation in turn increasing the productivity.

Team Members:

1.   Ashtesh N. Divakar
      Student at BharatiVidyapeeth College of Engg.
      Navi Mumbai.
      Area of Interest :Embedded Systems.

2.   Prathamesh P. Rane
      Student at BharatiVidyapeeth College of Engg.
      Navi Mumbai.

3.   Area of Interest: Robotics.
      Rahul G. Bane
      Student at BahartiVidyapeeth College of Engg.
       Navi Mumbai.
      Area of Interest: Robotics.