IOT Based Multifunctional Military Robot

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Abstract

A review of some latest achievements in the area of military robotics is given, with main demands to management of advanced unmanned systems formulated. The developed Spatial Grasp Technology, SGT, capable of satisfying these demands will be briefed. Directly operating with physical, virtual, and executive spaces, as well as their combinations, SGT uses high level holistic mission scenarios that self-navigate and cover the whole systems in a super-virus mode. This brings top operations, data, decision logic, and overall command and control to the distributed resources at run time, providing flexibility, ubiquity, and capability of self-recovery in solving complex problems, especially those requiring quick reaction on unpredictable situations. Exemplary scenarios of tasking and managing robotic collectives at different conceptual levels in a special language will be presented. SGT can effectively support gradual transition to automate up to fully robotic systems under the unified command and control.

Keywords—military robots; unmanned systems; Spatial Grasp Technology; holistic scenarios; self-navigation; collective behavior; self-recovery

INTRODUCTION

Today, many military organizations take the help of military robots for risky jobs. The robots used in military are usually employed within integrated systems that include video screens, sensors, grippers, and cameras. Military robots also have different shapes and sizes according to their purposes, and they may be autonomous machines or remote-controlled devices. There is a belief that the future of modern warfare will be fought by automated weapons systems. Military robots are usually associated with the following categories: *ground*, *aerial*, and *maritime*, with some of the latest works in all three discussed in the paper, including those oriented on collective use of robots.

Most military robots are still pretty dumb, and almost all current unmanned systems involve humans in practically every aspect of their operations. The Spatial Grasp ideology and technology described in the rest of this paper can enhance individual and collective intelligence of robotic systems, especially distributed ones. It can also pave the real way to massive use of advanced mobile robotics in human societies, military systems including and particularly.

I. RELATED WORK

During the 19 th and 20 th Centuries, the evolution of robots has proven to be useful in many fields of life. It was only a question of time until the military would use robotic applications for their own purposes. Advances in computer programming enabled engineers to build constructions that could fulfill things, which were not previously possible.
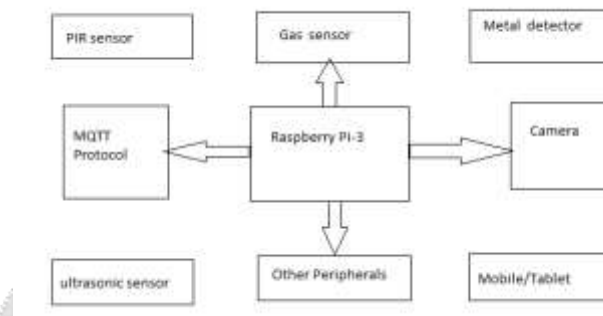In his chapter on the history of robots, Singer notes that, Thomas A. Edison and Nikola Tesla were the first to think about military applications. Both men worked on the transmission of electricity and experimented with radio-control devices. Tesla was the one who presented his idea of remote-controlled torpedoes to the U.S. military, but he was rejected.
During World War I, the development of robotic devices continued. An "electric dog", more or less a converted tricycle, was built to carry supplies. The vehicle was able to follow a light source, which can be seen as a precursor to laser control.
In 1917, a "land torpedo" was patented. The vehicle was supposed to carry one thousand pounds of explosives behind enemy lines. Caterpillar Tractors built a prototype just before the war ended. The first prototypes of missiles, equipped with preset gyroscopes and barometers, were also built around this time   Researcher has

proposed that proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. Proximity sensor often emits electromagnetic field or beam of electromagnetic radiation there are two types of proximity sensor-1) capacitive 2) inductive, capacitive is used to detect the plastic and inductive is used to detect metal body.in this project we use inductive type proximity sensor to detect the vehicle.high reliability,long service life,low control power.

II. PROPOSED SYSTEM

The new age of technology such as Android, GSM has redefined communication. Most people nowadays have access to mobile phones and thus the world indeed has become a global village. At any given moment, any particular individual can be contacted with the mobile phone. New innovations and ideas can be generated from it that can further enhance its capabilities. Technologies such as Infra-red, Bluetooth, Wi-Fi which has developed in recent years goes to show the very fact that improvements are in fact possible and these improvements have eased our life and the way we live. Remote management of several home and office appliances is a subject of growing interest and in recent years we have seen many systems providing such controls.

Mobile robots are robots which have the ability to move around and interact with their environment and not just hinged to a particular place. There are many labs and research groups from various universities and industries which are completely dedicated on researching mobile robots, because of their immense potential and varied application in industry, military, security, and entertainment.

The robot is specially designed for surveillance purpose. The control mechanism is provided along with video transmission facility. The video transmission is practically achieved through high speed image transmission. Initially, the robot will be equipped with an Android smartphone which will capture the scenario in front of it & will transfer the images to the server on which the user will be controlling and watching the live feed.

1. **Web Server: -** The web is consisting of a log-in interface and control page with video screen or a webcam page.

2. **Robot: -** The main components of the robotic body are an Android device, a microcontroller and motor drivers and motors. The Motion of the Robot is programmed using Raspberry pi microcontroller.

3. **Remote Computer: -** Now, the robot can be controlled by the user operating the Remote computer. The essential component here is the web browser on which we will be opening the control page to control the robotic action. Also we will be able to watch the live streaming on the video screen on the control page.

4.

Web Programming: There are several server side scripting languages which process the data on the server and send the data to the browser. PHP was primarily chosen because it is open source and for the easiness of embedding the scripts in the HTML page itself. HTML or Hypertext Mark-up Language is used to create web pages and it gives a clear understanding of the primary objectives. The HTML language is designed to achieve an efficient way of achieving transfer of data, and to evolve as new media formats were created, whilst remaining predictable to use. HTML is a set of codes that a website author inserts into a plain text file to format the content

Video Transmission: The Android device will be the creator of the video via the camera and responsible for transmitting the video over the internet to the server. It also maintains communication with the server through a

custom protocol to ensure proper identification and video streaming. Since many image processing algorithms require high complexity cost, running these algorithms on a mobile client with responsive interactions is often infeasible. One remedy to this problem is to offload the work to a high-performance server over the network.

Working -The new age of technology such as Android, GSM has redefined communication. Most people nowadays have access to mobile phones and thus the world indeed has become a global village. At any given moment, any particular individual can be contacted with the mobile phone. New innovations and ideas can be generated from it that can further enhance its capabilities. Technologies such as Infra-red, Bluetooth, Wi-Fi which has developed in recent years goes to show the very fact that improvements are in fact possible and these improvements have eased our life and the way we live. Remote management of several home and office appliances is a subject of growing interest and in recent years we have seen many systems providing such controls.

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III. CONCLUSION

History has shown that the military makes use of every innovation that has the potential to support military work In the designing of our projects, we have kept in mind the user. The controlling of robot is easy as the various buttons are available on the web page specifying the various actions. The Android device used here makes possible the fast and good quality of image transmission. The programming used gives very good control on the movements of the robot. The Controlled Wireless communication can be achieved using Wi-Fi network or internet. The future implications of the project are very great. The robot is very robust.

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