Military Spying and Bomb Disposal Robot Using IOT

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Abstract – *This innovative system is made for operations which involve high risk for humans to enter, especially for some criminal case and may prove very beneficial for military area for spying purposes. This system saves the valuable life of our soldiers. This system makes use of robotic arm as well as robotic vehicle to enter into army area. The whole system is controlled via android application.*

In the case of military bomb disposal operation, a client will connect to the server using TCP/IP link. Once a client connects to the server, client can issue commands to move the robot in forward, backward, right and left direction.

Key Words: **TCP/IP Protocol link, metal detector sensor, Wi-Fi module ESP8266, android phone, Internet of Things (IOT).**

1. INTRODUCTION

In this project bomb disposal missions provide arm or designers, disposal technicians and mission controllers with a number of challenges including high risks in it. A typical bomb disposal mission will initially involve investigating the site using a remote controlled robot and if possible, disarming the bomb remotely. Sometimes it is necessary for a human which is bomb disposal expert to disarm the device. For this purpose, the expert who exposes the bomb will put on a protective suit and helmet, pick up a tool box of equipment, and walk the 100 or so meters to the site .To reach the bomb's location, it may be necessary to climb stairs, crawl through passage way or even lie down to fulfill the mission. The system also includes night vision camera which will not only allow viewing whatever will be recorded in day time but also during night. The whole system is controlled via android application.

The Wi-Fi 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 a 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.

1.1 Working Principle

1.1.1 Metal Detector sensor

This metal detector can be used to detect slightly big size metallic objects. It is used to sensing coil. The coil should be kept near metallic object for detection. Input of circuit is a weak R.F range oscillator. Sensing coil forms parts of tuned oscillator.

When coil is brought near a metallic object magnetic energy is absorbed and oscillator fails to work. Then final transistor conducts and buzzer is activated. Use a 9 Volts battery. After connecting battery, adjust 4.7 kilo ohms present till circuit just stop sounding.
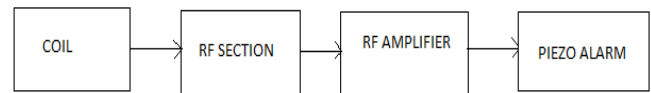

Fig-1: metal detector sensor

1.1.2 Wi-Fi Module ESP8266

The ESP8266 is serial Wi-Fi transceiver module. It contains the integrated TCP/IP protocol stack which gives access with any microcontroller to your Wi-Fi network. Each ESP8266 module is preprogrammed with AT commands so it is very easy to operate it. This module is powerful enough onboard processing and its storage capacity allows to integrated with any sensors. The ESP8266 is cost very cost effective module with ever growing features.

1.1.3 Providing commands through Android phones

Android phone will connect to the server using TCP/IP link. Once it connects to the server, it can issue commands to move the robotic vehicle in forward, backward, left and right direction by using Wi-Fi serial application.
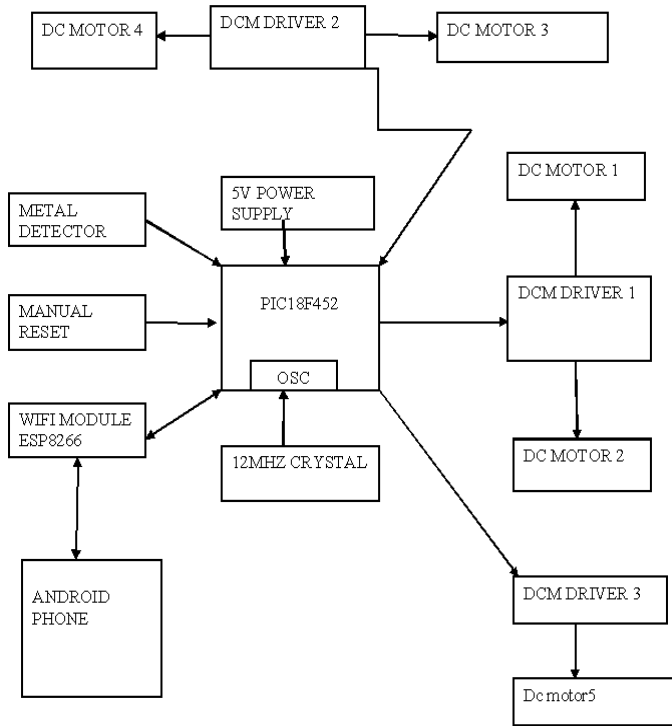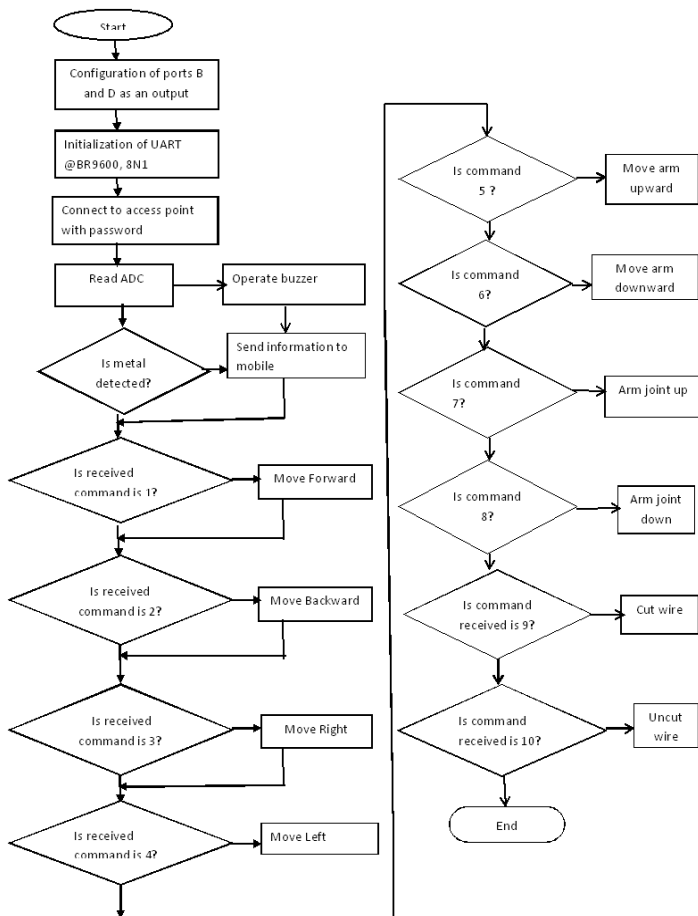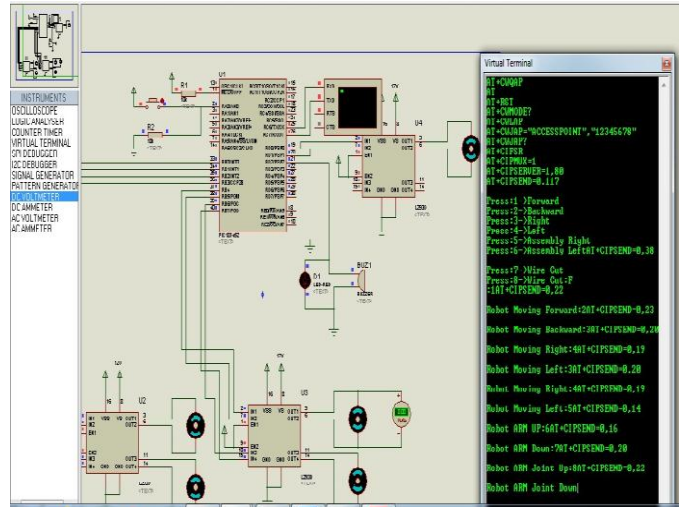

Fig -2: Block Diagram

2. FLOWCHART

3. RESULT

4. CONCLUSION

Due to the less and rare technology available for bomb disposal operation the demand for wireless technology used for military spying and bomb disposal purpose is very beneficial. And this is tremendous system to save the valuable life of our soldiers. In this paper, implementation of IOT data networks in military environment has been shown using Wi-Fi infrastructure available on robotic vehicle and android phones.

5. FUTURE SCOPE

The technology can be improved further by giving commands to receiving circuit and control it by using satellites communication. It will used in malls for pickup, drop trolleys and automotive car painting.

REFERENCES

1. Patoliya, Jignesh, Haard Mehta, and Hitesh Patel," Arduino controlled war field spy robot using night vision wireless camera and Android application." 2015 5th Nirma University International Conference on Engineering (NUiCONE).IEEE ,2015.

2. Navy to purchase MMP-30 bomb-disposal robots from The Machine Lab for use in Afghanistan. (n.d.). received from   from www.militaryaerospace.com/articles/2013/06navy-bomb-robots.html

3. Khurshid, J, and Hong Bing-Rong, "Military robots-a glimpse from today and tomorrow." Control, Automatic, Robotics and Vision Conference, 2004. ICARCV 2004 8th.Vol.1.IEEE,2004.

4. DiVerdi, Rocco." Miniature Robotic Hand for Bomb Disposal".(2012).

5. Piyare, R. and Tazil, M.(2011) "Bluetooth Based Home Automation System Using Android Phones". IEEE 15TH International symposium on consumer electronics (ISCE),14-17 june 2011,Singapure.

6. Ou, Chin-Chih, and Tien-Chi Chen. "Power-Assisted Wheelchair Design based on a Lyapunov Torque Observer". INTERNATIONAL JOURNAL OF INNOVATIVE COMPUTING INFORMATION AND CONTROL 8.12 (2012): 8089-8102.

7. Y. M. (n.d.). The Bluetooth Based LED Control For Arduino Test Platform By Using Mobile APP.INTERNATIONAL JOURNAL OF SCIENTIFIC AND TECHNOLOGY RESEARCH,4(06),June2015.ISSN2277-8616