



## Military Spying and Bomb Disposal Robot

<sup>1</sup>SHRUTI VASANWALA, <sup>2</sup>DHRUMIL PATEL, <sup>3</sup>BALBHADRA PRAJAPATI, <sup>4</sup>RIDDHI ODEDRA, <sup>5</sup>PRASHANT SAHATIYA

<sup>1,2,3,4</sup> Student, Dept of IT, PIET, Vadodara.

<sup>5</sup>Asst. Prof, PIET, Vadodara, Gujarat, India.

<sup>1</sup>PIET, Vadodara, Gujarat, India

**Abstract :** The military spying robot Has helped the Army, the fire workers and the police officer in the critical situations but when it comes to efficiency many of existing system have less accuracy and less technology. Our goal is to make most efficient robot in order to Technology and also accuracy. For manual support we are installing Robotic arms with metal detector. The wireless bomb disposal robot which will help to improve defense of our nation from terrorist, suicide bombers and other such activities. The bomb detectors and disposal system work only with the presence of experts. But this way of analyzing takes more time and make risk to life of experts. The Wireless Bomb Disposal Robot uses a control application, at the user end to control the robot via android application using Wireless technology. The whole system is controlled via android application. The bomb technician controls the robot using this application at control site. Input from the user is transmitted over to the Receiver, where it is received, identified and given to the appropriate module (Robot) to act.

**IndexTerms - Raspberry pi 4 model B, metal detector sensor, Wi-Fi module ESP8266, android phone, Internet of Things (IOT).**

### I. 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 fulfil 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. Robotic arm and camera are placed in such way that it has a minimal ground clearance and a camera at top for continuous surveillance. Metal detector sensor detects the ground metals by creating magnetic field through its coil.

The use of raspberry pi in such robot is another up-gradation in the field of robotics. An outstanding up gradation in the robotics industry is the internet-controlled robot.

The microprocessors and ultrasonic sensor 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 and also controlling buttons for camera.

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.

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 Raspberry Pi 4 Model B

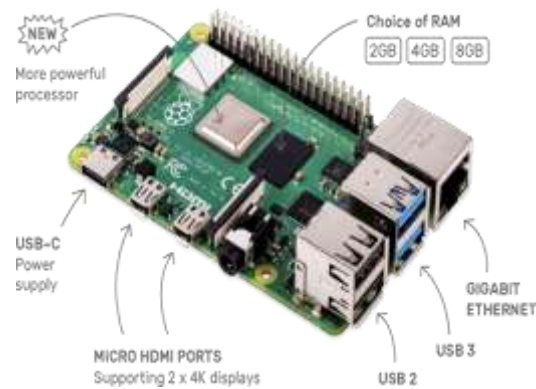


figure 1: raspberry pi 4 model b

It offers ground-breaking increases in processor speed, multimedia performance, memory, and connectivity compared to the prior-generation Raspberry Pi 3 Model B+, while retaining backwards compatibility and similar power consumption.

### 1.1.2 Metal Detector sensor

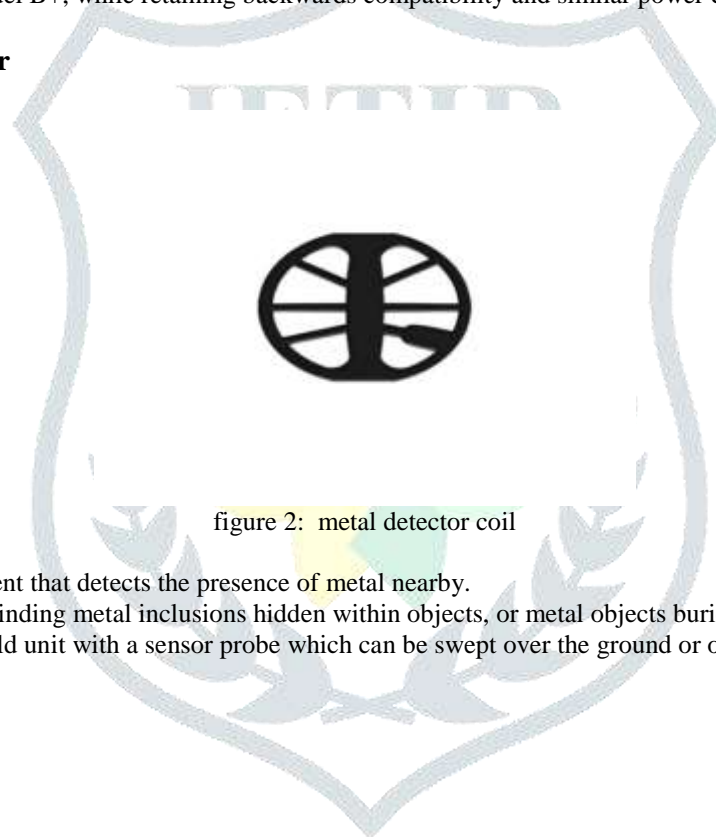


figure 2: metal detector coil

A metal detector is an instrument that detects the presence of metal nearby. Metal detectors are useful for finding metal inclusions hidden within objects, or metal objects buried underground. They often consist of a handheld unit with a sensor probe which can be swept over the ground or other objects.

### 1.1.3 Wi-Fi Module ESP8266



figure 3: wi-fi module esp8266

The ESP8266 Wi-Fi Module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-Fi network.

The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware, meaning, you can simply hook this up to your Arduino device and get about as much Wi-Fi-ability as a Wi-Fi Shield offers (and that's just out of the box)! The ESP8266 module is an extremely cost-effective board with a huge, and ever growing, community.

### 1.1.4 Ultrasonic Sensor

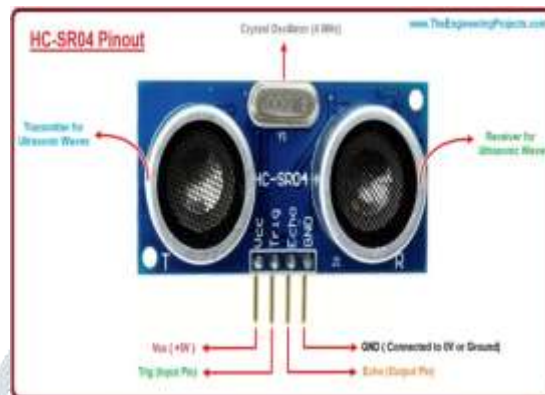


figure 4: ultrasonic sensor

Used to avoid and detect obstacles with robots like biped robot, obstacle avoider robot, path finding robot etc.

Used to measure the distance within a wide range of 2cm to 400cm

Can be used to map the objects surrounding the sensor by rotating it Depth of certain places like wells, pits etc. can be measured since the waves can penetrate through water.

### 1.1.5 Night Vision Camer



figure 5: night vision camara

The project is designed to develop a robotic vehicle using android application for remote operation attached with wireless camera for monitoring purpose.

The robot along with camera can wirelessly transmit real time video with night vision capabilities.

## 2. BLOCKDIAGRAM

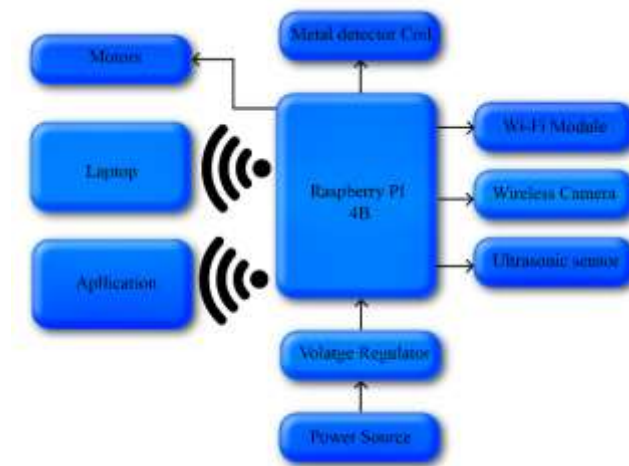


figure 6: blockdiagam

## 3. RESULT

Amid tests, our plan works successfully. The essential metric for our paper would be precision. This has been tried to the best of our capacity. We have the ability to see exactly the things that are going on. As far as we can tell, our structure has created no disturbing influences. Depending on the course of the engine, the robot moves depending on the information we provide via the android application control. With the help of the camera, we can see the things going on in the region where the robot is hidden. By keeping the circuit direct, most customers have the capacity to use it effectively.

The goal of this paper is to limit human setbacks in psychological militant assaults. The battle robot has been intended to handle such a brutal dread assault. This robot is Raspberry pi 4 model B-controlled, and has every one of the controls like an ordinary vehicle. A remote camera was introduced to you, with the aim that it will screen opponents remotely and also camera is operated via android application. It can quietly go into enemy zone and send us all the data through its small camera eyes.

This undercover agent robot can show in star apartments, shopping malls, jewelry rooms, and so on, where there is risk of gatecrashers or scared mongers. Since human life is in every case valuable, these robots are the substitution of contenders against fear-based oppressor in war zones.

## 4. CONCLUSIONS

We built a robot for spying purpose based on night vision camera to capture the night activities at the war field or any outside field where human being cannot go.

Here is a basic mechanical robot, IOT technology and interfacing of raspberry pi and metal detector module and connectivity all together can form the best bomb- disposing device which would be very helpful to save human life using the internet.

The controlling is done using Raspberry Pi microcontroller.

The video capturing is done by night vision camera and transmitted to the smart phone where a user or a person can monitor the field of war.

## 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] Chaitrali Jadhav, Shamli gibile, Snehal Gaikwad, Neelam Dave, "military spying and bomb disposal robot using IOT". International research journal of engineering and technology ISSN (e): 2250-3021, ISSN (p): 2278-8719 PP 09-11-2018.
- [2] Senthamizh, Subbu Lakshmi, Shubhashree, Prof. M. Priyadarshini, "Advanced Military Spying and Bomb Disposal Robot". IOSR Journal of Engineering 05 Issue: 04 | Apr-2018.
- [3] Sarmad Hameed, Muhammad Hamza Khan, Naqi Jafri, Adeel Azfar Khan, Muhammad Bilal Taak, "Military Spying Robot". International Journal of Innovative Technology and Exploring Engineering ISSN: 2278-3075, Volume-8, Issue-7C2, May 2019.



- [4] Priyanka Yadav, Leena Chaudhari, Swati Gawhale, "War Field Spying Robot with Wireless Night Vision Camera", International Journal for Research in Applied Science & Engineering Technology ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor :6.887 Volume 5 Issue XII December 2017.
- [5] Nandagopal Rathod, Puneeth. G, P. Brahmaiah, Sandur Gangadhar, Gururaja Sharma, "Advanced Spying and Bomb Disposal Robot", International Journal of Scientific & Engineering Research Volume 11, Issue 6, June-2020 ISSN 2229-5518.
- [6] Patil Shailendra D., Wagh Shubham B., Tirmakhe Dipak K., Gavate Swati P., Prof. Dhakane V.N, "Android Based Advanced Military Spying and Bomb Disposal Robot", Resincap Journal of Science and Engineering Volume 3, Issue 11 November 2019 ISSN: 2456-9976.
- [7] Rajat Desai, Pankaj Naik, Arun chawadi, Virendra Naik, "Advanced Military Spy Robot and Bomb Disposal", International Journal of Science Technology & Engineering | Volume 4 | Issue 9 | March 2018 ISSN (online): 2349-784X.
- [8] Akhil Jilapally, Akhila Kasireddy, Dr. Vipul Dabhi, "Android application-based war field spying robot with night vision wireless camera", Juni Khyat ISSN: 2278-4632 (UGC Care Group I Listed Journal) Vol-10 Issue-5 No. 4 May 2020.
- [9] D.N.S. Ravi Kumar, Durgesh Kumar, "VNC Server based Robot for Military Applications", IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI-2017).
- [10] Dr. Hasan U. Zaman, Baized, Chowdhury, Uddin, Rezwan, Ishaque, Nazia Nawar Hassan, Prof. S. M. Hasibul Hoq, Swapnil Sayan Saha, Saad A Akash, "Design, Control & Performance Analysis of muktibot", IEEE 2016.
- [11] Rushikesh Uphad, Vaibhav Kharat, Priyanka Said, Supriya Shinde, "A SECURE BOMB DIFFUSAL SPY ROBOT CONTROLLED USING ANDROID APP", International Journal of Computer Science and Mobile Computing, Vol.8 Issue.6, June- 2019.
- [12] Somen Nayak, Kunteya Shaw, Jayashish Choudhury, Anirban Chakraborty, Asif Iqbal, Tapasundar Kar, Sumit Kumar Bera, Sourav Saha, Debojyoti Deb, Doipayan Roychoudhury, Dipta Mukherjee, Ratul Dey, Shopan Dey, "Unmanned Multifunction Robot for Industrial and Military Operation over Resource Constrained Networks: An approach", IEEE 2017.
- [13] K. Anil Bablu Louis, K.M.S.R. Tarun, T. Teja, B. Santhi Kiran, "Intelligence Spy Robot with Wireless Night Vision Camera Using Android Application", International Journal for Modern Trends in Science and Technology Volume: 03, Special Issue No: 02, March 2017 ISSN: 2455-3778.
- [14] N. Thenmozhi, R. Banu Sangari & K. Shiva Janani, "WAR FIELD SPYING ROBOT USING NIGHT VISION WIRELESS CAMERA", International Research Journal of Engineering Sciences Volume 5 Issue 1 June 2019.
- [15] Raju Hajare, Mallikarjuna Gowda C. P., "Design and development of combat robot for military applications", International Journal of Reconfigurable and Embedded Systems (IJRES) Vol. 9, No. 2, July 2020, pp. 125~132 ISSN: 2089-4864, DOI: 10.11591/ijres. v9. i2. pp125-132
- [16] Swati Pahune, Aishwarya Parate Harsha Gawande, Minaxi Nagoshe, Monika Rewatkar, Priyanka Moundekar, Shruti Dhakate, "Wireless Spying Robot for Supervision", International journal on future revolution computer science and communication engineering volume:4 Issue: 3 March 2018.
- [17] Tansen Dhar, Anik Das Gupta, Mithun Chandra sarkar, "Advanced Spying and Hazardous Object Pick Up and Disposal Robotic Vehicle", 2019 5th International Conference for Convergence in Technology (I2CT) Pune, India. Mar 29-31, 2019
- [18] Ms.M.S. Minu, Medharametla Alekya, Manduva Supriya, Polamreddy Malvika, "Arduino Controlled Multipurpose War Field Spy Robot for Military Surveillance", International Journal of Advanced Science and Technology Vol. 29, No. 03, (2020), pp. 5485 - 5494
- [19] Aviraj Naik, Atiba Quresi, Amit Dubey, Nilam Hatwar, "Wireless Bomb Disposal Robot using Night Vision Camera", International Journal of Advance Research, Ideas and Innovations in Technology 2018 ISSN: 2454-132X volume 4, issue 2
- [20] Malini.P, Mahalakshmi.A, Prabhavathi.K. B, Rinthiya Praba.G, Srinidhi.P, "Design and Implementation of Arduino based Military Spying and Bomb Detecting Robot", 2020 IJCRT | Volume 8, Issue 5 May 2020 | ISSN: 2320-2882