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Ruthless Encounter using IoT

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Abstract: The armed forces across the globe uses robots that helps them to perform different risky tasks which is difficult for the soldiers to perform. The robots consist of integrated system which are used in military, video screens, sensors and cameras are also included. To trace out the trespasser with the help of wireless sensor network and to take the necessary action. Thus, this prototype can save the soldier's life and minimize the error in defence side using this Prototype. Keeping in the soldier's life into consideration and to protect the country from enemies this is one of the specially designed system.

Keywords: IoT, GSM, PIR Sensor, IR Sensor, Bluetooth, Gas Sensor, Intelligent Unmanned Robot (IUR): IoT Wireless Network: Military Robot etc.

I. INTRODUCTION

The modern army does not include full 360-degree surveillance, thus monitoring the entire border with the help of a single soldier is difficult to manage due to various factors such as fog, snow, rain and other weather conditions that can make it difficult to monitor the border. The detection of land mines is another major problem. Lots of dangerous gases can be released that can make soldiers unconscious, which ease the attack of the opponent. The government spends huge sum of money keeping criminals incarcerated without punishing them is a national loss. So, the goal is to provide solutions to problems such as 360-degree surveillance, drugs smuggling, economic growth, killer instinct, surgical gas discovery.

II. LITERATURE SURVEY

Design and Construction of mini-Robot for Military purpose using mobile devices A. G. Barrientos, J. C. G. Vidal [1], reviewed from this paper that enemies at the border have various military equipment's, weapons, missiles and etc. which may cause the damage or harm to our soldiers, to overcome this robot are being used to save the life of our soldiers This methodology is based on PLM which stores data using digital image processing. Touch screen-controlled defence robot, Amesh Nayak and Mithuna Shetty [2], states that this module provides continuous visual monitoring through wireless camera and sends the data to the control unit. IoT based surveillance robot, Sweeta deshmuk [3], Studies infer that it is an IR and camera-based security system for protected areas, this has capabilities to shoot the intruder which after being sensed by the IR sensor and will activate the alarm. Multifunctional robot for border security application, Jain Khushwant [4], reviewed that this technology is for remote and border area surveillance using GSM technology. This uses Internet as the communication medium.

III. WORKING PRINCIPLE

Internet of things (IoT) embedded with electronics, software, sensors, actuators, and network connectivity which enables these objects to connect and exchange data. The robot works in dual mode, that is the robot can be controlled in both manual mode and automatic mode. This is the distinguishing factor while compared to the other kind of robots, as the most of the bots work in manual mode. The automatic mode robot is programmed within the embedded chip and it makes the robot to act as human beings. The second distinguishing factor from the other robots is that, the proposed robot is capable of sensing humans, This, is done with the help of PIR sensor which help in detecting obstacles.

The communication used by Bluetooth assists in transmission data and messages. In the proposed program, the region can be used with the help of a block drawing including sensors, Bluetooth modules, camera, a buzzer unit and power supply. These devices are connected with SS T89E516RD2 microcontroller. All these senses exist directly connected to the small control we have own automated system according to their use.

This robot is an IR-based security system with a camera induced in it which can be used in protecting the areas and borders, heard by Invaders, violating the law and transferring the video to another limit for verification. The IR Sensor detects any attackers or escapes and will turn on the alarm and turn on the guns in that place. The robot will shoot the attackers if they crossed the border. Thus, by protecting the nation from the intruders' attack and saving the life of the people who are staying at the border sides as well as the people of the nation.

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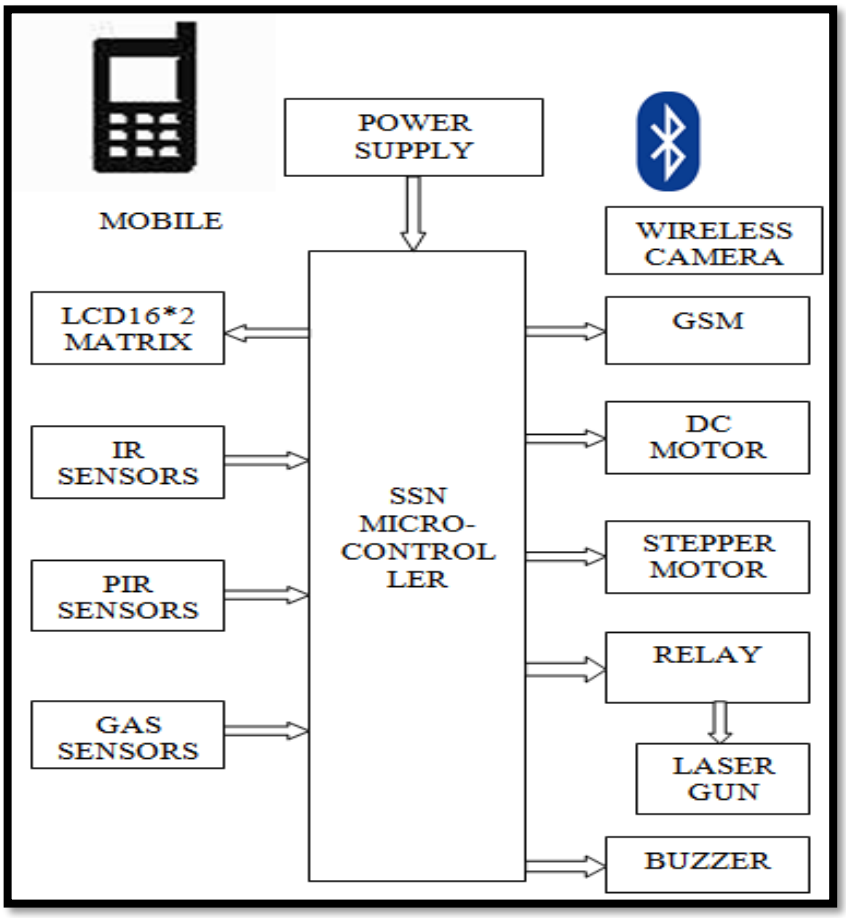

Fig. 1 Block diagram to design a robot.

IV. PATH PLANNING ALGORITHM

This section describes the algorithm for optimizing the search method free collision method. The main problem is autonomous design the robot is roaming, where route planning plays an important role which adds an independent feature to the robot. Therefore, planning methods are the same which is used to reduce distance and chance of collision force use. The following steps should be taken to control movement once the function of the robot is shown in Figure 2.

- Military robot starts with automatic mode.
- Robot movement is controlled by the user.
- During autonomous operation when an infrared passive sensor which uses a smartphone and the infrared sensor detects any moving object, itself rotates in that direction and puts the gun.
- Alert messages are sent to the user via the GSM module after the activation of any sensor.
- The IR sensor detects any object being treated as obstacles and send a message to the user.
- PIR sensor detects any moving objects then send a message to the user.
- As soon as the sensor hears any intruders' movement of enemies, it shoots with the help of a laser gun.
- The laser gun is controlled by transmission.
- It does not detect only importers but also any toxic gas released at the border sides with the help of a gas sensor.
- As soon as the poisonous gas is detected, it is notified to the user microcontroller for sending messages.
- When enemies use any dead soldiers to defend themselves and their video and photos are taken with a wireless camera which is sent to the person who is operating the robot.
- The portable camera can also be used as a wireless camera which is used to send videos to user for attention.
- The laser gun can be rotated by all the directions (360 degree) which can be used to shoot enemies seen anywhere.

In this way, the working flow of the robot is made.

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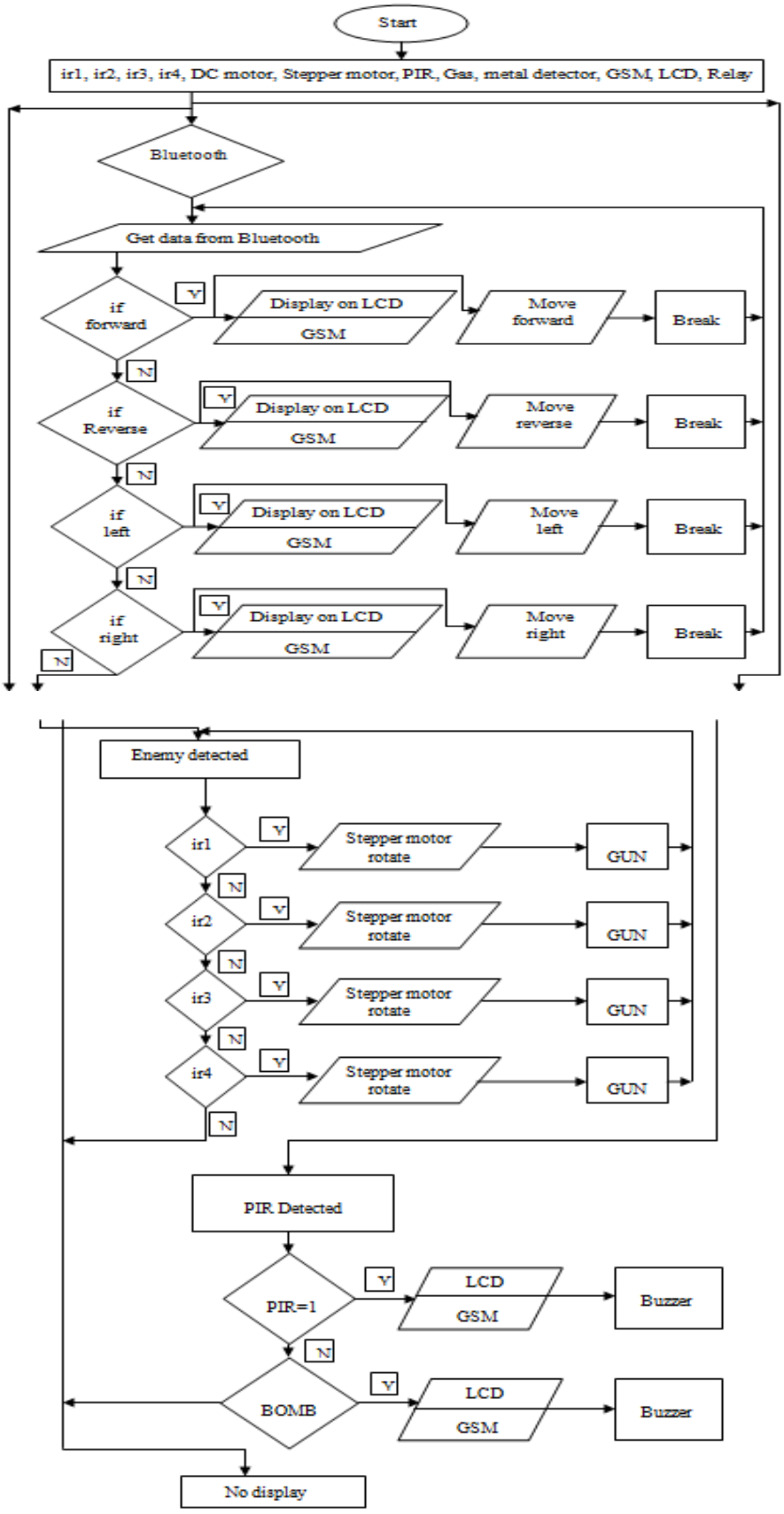

Fig 2 Algorithm and the Functioning of the robot.

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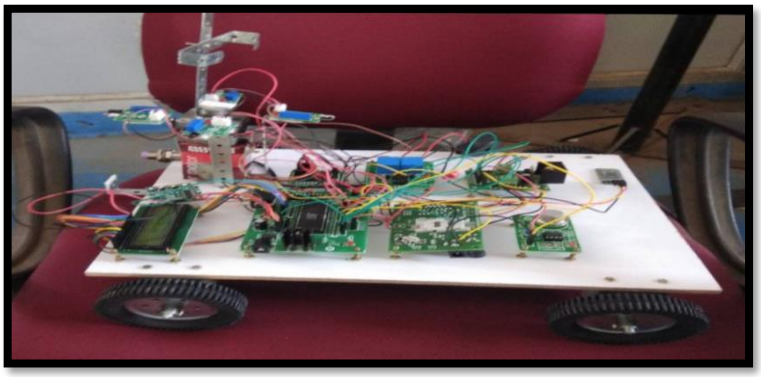
V. RESULTS



Bluetooth is used to send videos, and photos to the person who is operating the robot. Figure indicates that the robot is ready with all the required features needed for it to function. The robot can go anywhere on the battlefields where human access is impossible. The robot is equipped with a wireless camera for the user to explore all enemy movements with video on smartphone connected to it. It uses the Camera, which starts recording the live videos and transfer the videos to the recipient at the other end. Without leaving the current location, the user can view a real-time video on screen. If any intruder is detected or any toxic gas is detected by sensor, the message is sent to the user and the robot will shoot the detected attackers anywhere though laser gun. With a toxic gas warning message will be displayed and the buzzer makes a sound.

VI. FUTURE SCOPE

User can use this system to install military applications using appropriate senses. By simply changing the robotic unit design, it can be used in hospitals to monitor the patients. Using chemical sensors, the user can detect harmful gas leakages in the chamber at the time delay that occurs in executing orders which can reduced the issue caused and thus the user can have more real-time access robot. With reduced time delay the user may have a faster response and to act swiftly in any illegal activity in a highly monitored area place. This robot can also be used as a spy robot.

VII. CONCLUSION

Inexorable Border Security Force is a current research area where lots of scope exists. The type of communication strategy is used in improving security operation, where the user can control the machine from any part of the world by getting live video response. IoT and smartphone video camera makes it an effective robot. This robot car with different features is widely available which is used as a surveillance robot in emergency rescue operations where the user will be made alert in advance before any attack. The proposed plan provides exposure to design a versatile defence robot. This robot has a lot of industrial and defence applications. Laser gun which is connected to the robot acts as a good substitute to carry weapons instead of soldiers. The laser gun can be raised with the help of wireless camera which can be used to identify the exact location of the terrorists with the help of wireless camera, which saves many lives during rescue operations. Another application is a border security program to hear intruder movement using the PIR sensor. Current range performance up to 10m and more can be done complex. The laser gun was found to be very accurate in identification in direction.

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