

A Sniffer Robo For IED Appease And Vigil

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Abstract- In a recent trend so many countries are using traditional way of bomb defusing. Most of the countries suffering this problem are either developing countries or underdeveloped countries. So they have to rely upon their manpower and have to lose lives when these officers are unable to dispose or disarm any particular explosive device. Basically our project is based on IOT for bomb diffusion and military Surveillance. The main goal of the project is to provide safety to the bomb disposal squad as well as better surveillance at border as well as camp sites. Provide a remote monitoring and controlling application for analysis of a suspicious packet (or bomb). Allow the user to manipulate the packet using the robotic arm. Our project includes wireless operations for bomb diffusion, metal detection, LDR sensor for night vision automatic lights, human detection using PIR sensor, provides continuous visual monitoring through the wireless camera and send continuous data to the data base.

Keywords- Raspberry pi 3b+, python, IED, Raspbain, robot with arm, servo motor, PIR sensor and LDR sensor

I. INTRODUCTION

To begin with, the usual way in which bombs are disposed around the world is to use the bomb disposal teams which are equipped with the bomb disposal equipment and these teams are accompanied by a dog squad as well to detect any other explosives nearby area. This leads to many deaths when the operation to dispose an IED does not go as planned, hence resulting in a big loss for the organization and the family of the one caught in the blast radius. The Internet of Things (IoT) alludes to the system of physical gadgets that highlights an IP address for web availability, and the correspondence between those articles and other Internet-empowered gadgets and frameworks

Basically our project is based on IOT for bomb diffusion and military Surveillance. The main goal of the project is to provide safety to the bomb disposal squad and better surveillance at borders as well as camp sites. Provide a remote monitoring and controlling application for analysis of an IED. Allow the user to manipulate the packet using camera and robotic arm. Our project includes wireless operations for bomb diffusion, metal detection, LDR sensor for night vision

automatic lights, human detection using PIR sensor, provides continuous visual monitoring through the wireless camera and send continuous data to the data base. Due to this multi features we can use it for the multiple application.

II. LITERATURE REVIEW

- A. Between the years 2011 and 2018, there has been an increase of 42% civilian deaths as a result of explosive violence around the world. In the year 2011 the total number of deaths was recorded to be 30,127 while in the year 2018 this grew up to 43000. These numbers are terrifying and people all around the world need a firm solution to deal with explosive devices.
- B. Between the years 2011 and 2015, roughly 100-500 cases were reported every year, which puts it next to only a few other nations like Pakistan, Afghanistan and a few more. Most of the countries suffering this problem are either developing countries or underdeveloped countries and hence they cannot afford to buy very expensive equipment that countries like USA, Russia, and Canada can use.
- C. Due to not being able to purchase the expensive equipment, these countries have to rely upon their man power and have to lose lives when these officers are unable to dispose or disarm any particular explosive device. Not only this but nearly 56% of death and injuries reported due to explosive weapons come from Improvised Explosive Devices (IED).
- D. Approximately 4000+ members of the armed forces while in the act of disarming the explosives. This leads to an immediate need to develop such technology and equipment which work on the same grounds as the expensive equipment but still cost a fraction of their cost.

III. STUDIES AND FINDINGS

- A. The bomb disposal squads have limited choice to either utilize human intervention in the process of bomb disposal or use very costly equipment and that expensive robot which might get damaged or destroyed in the process of bomb disposal. The problem with bomb disposal utilizing human intervention is that there is high risk of human lives involved in the process.

- B. Process of IED (Improvised Explosive Devices) disposal/disarmament and surveillance by utilizing these robots which will be much cheaper, small in size and having so many features than the currently available equipment which costs enormously high amounts of money than what we are trying to create. We do recognize that our product will be slightly less packed than what is available but our primary concern is to provide usable and comparatively cheaper IED disposal robots
- C. One of the main objectives of our project is to provide safety to bomb disposal/disarmament squad and provide human less surveillance at the border, camp site, remote and sensitive locations in country. It also provides usable and economical choice for bomb disposal/disarmament for developing and underdeveloped countries who cannot sustain high costs of currently available robots.
- D. Our sniffer robo will be less complicated to use than the others traditional robots already available in the market; this is done by utilizing a few embedded technology components such as wireless camera, PIR sensor, metal detector, ultra sonic sensors and robotic arm.
- E. In order to make the robot a viable option, we designed it to use a similar structure to a war tank and hence utilized the same design and made some improvements to make it better for the project outcome.

IV. FUTURE ENHANCEMENT

Step climbing mechanism will help the user to move from one floor to other floor. At present the robot does not have the capability to make decisions on its own that is there is no built in artificial intelligence in it. Therefore the robots working are based purely on the decisions made by the end user of the robotic control application. Therefore Artificial Intelligence may be provided to the robot for making the process of decision-making much quicker and reliable. Portable X-ray machine can be added to the robot which can allow taking real life X-ray which will benefit the operator to know about the explosive better.

V. CONCLUSION

A sniffer Robo has sufficient range for operating on suspicious packets from far safe distance. This robo have so many features help us to save the lives of civilization and team which is involved in the operation. This is also very economical and compact as compared to the ones that are already available in the market. This can range from military applications to even farm and agricultural or medical applications because of the multi feature.

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