DRONA (BOMB DETECTION) – AN ARTIFICIAL INTELLIGENGE AND IOT BASED PRODUCT

A Minor Project Synopsis Submitted to

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Towards Partial Fulfillment for the Award of

Bachelor of Engineering
(Computer Science and Engineering)

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July - Dec 2020

CONTENTS

SYNOPSIS

1. TITLE

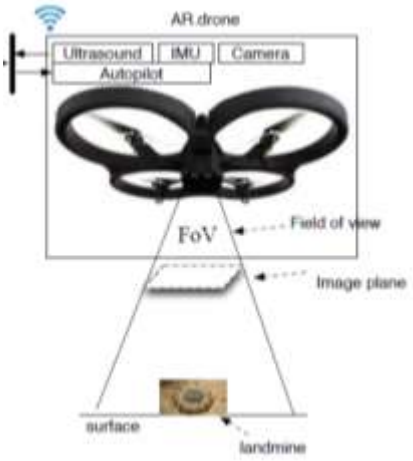
DRONA (BOMB DETECTION) - ARTIFICIAL INTELLIGENCE AND IOT BASED PRODUCT

2. INTRODUCTION

The military has been the first to deploy machines as an attempt to overcome the risks involved when the landmine detection process is carried out by humans. Currently, there are fully autonomous systems which do not require a human operator for monitoring both detection and deactivation of explosive landmines. Our goal is to integrate and evaluate a set of low-cost technologies that allow the detection of explosive landmines autonomously and without compromising the mission. The goal is not only to detect fully visible landmines but also those partially buried. The fully autonomous systems which do not require a human operator for monitoring both detection and deactivation of explosive landmines.

- **PROJECT BENEFITS**

1. Easily to Locate the Bomb or Landmine
2. Easily to Handle as it is Autonomous
3. Easily Detonation of Bomb or Landmine
4. Easily Controlled via Remote
5. Easily to be Used for Patrolling
6. Only Remote Access (Cannot be access globally)



- **PROJECT SCOPE**

The scopes of this project are:

1. Detection and Detonation without Human Intervention
2. Large Sector Areas Patrolling
3. Using Low cost Technologies

3. PROBLEM STATEMENT

"Explosive landmines have cost the lives of hundreds in several countries. The military has been the first to deploy machines as an attempt to overcome the risks involved when the landmine detection process is carried out by humans. "

CAN WE OVERCOME THIS?

4. OBJECTIVES

1. To integrate and evaluate a set of low-cost technologies.
2. To detect fully visible landmines and partially buried.
3. The fully autonomous systems which do not require a human operator for monitoring both detection and deactivation of explosive landmines

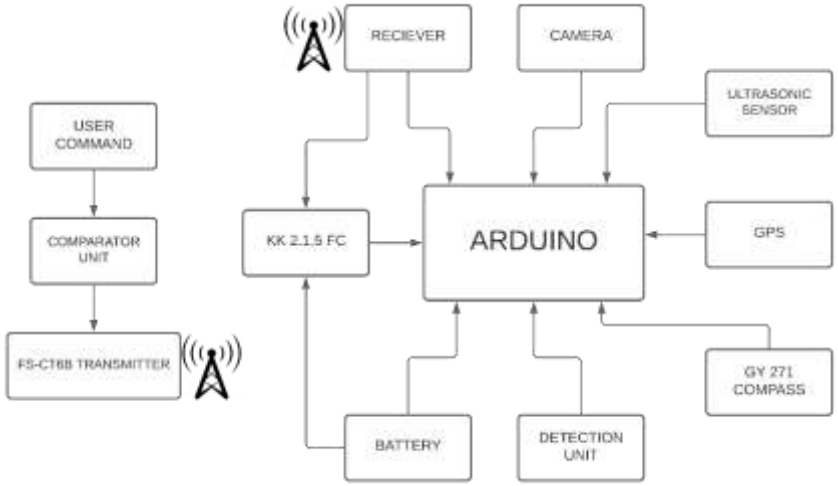
5. INTENDED USER

Our Drone is going to be Defense Systems and for local Police.

6. EXISTING SYSTEM

1. Harshwardhan Zala, aged 15, on an inventive path that resulted in the design for a drone that could detect and detonate landmines.
2. The world's first drone-based explosive detection system, Spectro Drone, has been unveiled by Laser Detect Systems in Tel Aviv, Israel.
3. The Defense Research and Development Organization (DRDO) and the Indian Institute of Science in Bangalore have developed a new bomb detection device called Raider-X.

- **PROCESS FLOW**



7. PROPOSED SYSTEM

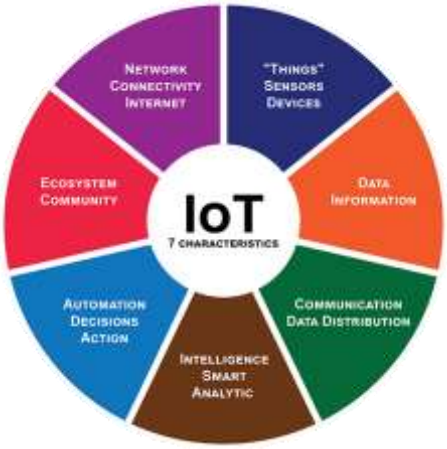
We are proposing a drone which has RADAR for the detection of various types of bombs. By using this we can also operate the drone up to 15 kms. The device is also waterproof to be able to operate in heavy rain, and equipped with 2 strong front IR LEDs to operate in the dark, and a GPS locator and hardware/software module to allow it to return to base automatically or recovered if lost. The goal is not only to detect fully visible landmines but also those partially buried. The fully autonomous systems which do not require a human operator for monitoring both detection and deactivation of explosive landmines. A wireless camera which consists of both transmitter and receiver. It is connected to the servo motor that can easily rotate the camera up to 180 degrees to cover the wide range of area. Radar can detect the bombs present in the underground and give the information to the operator that is the bomb is present in place as per the GPS location.

- **SYSTEM FEATURES**

1. Bomb Detection
2. Bomb Detonation
3. Patrolling
4. 75% Autonomous 25% Human Intervention
5. Both Radar and Laser Technology used

- **HARDWARE REQUIREMENT**

1. Arduino Circuit
2. Bluetooth Module HC-05
3. Knock Sensor
4. PIR Sensor
5. EIT (Electrical Impedance Tomography)
6. X-Ray Backscatter
7. Explosives Vapor Detection Technique
8. IR Sensor
9. ULTRASONIC SENSOR
10. GPRS SENSOR

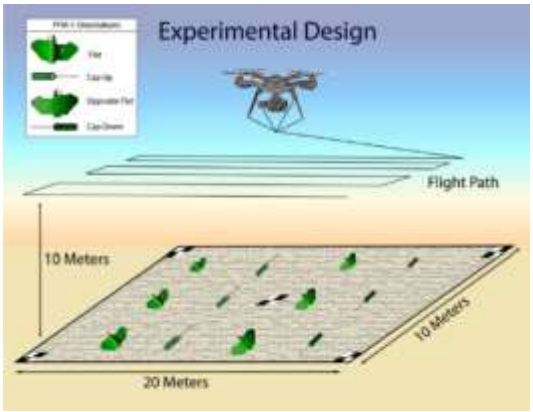


- **SOFTWARE REQUIREMENT**

1. Python IDLE
2. MySQL Cloud Server
3. Arduino Editor
4. OPEN NEURAL NETWORK EXCHANGE (ONNEX)

8. EXPECTED OUTCOMES

1. By using this method, we are aimed to reduce the death of people and protect them from bombs.
2. We can easily detect the bomb by controlling the drone up to range of 15 kms.
3. kms. It can also detect the enemies from the long distance and can release the arrows to give protection from enemies.



9. CONCLUSION

These days bomb attacks are increasing to protect people without disturbing them is major problem. By observing the density of people, the bomb detectors can detect the bomb. When drone is activated it can be controlled by using flight controller. Our results demonstrate that the integration of several low-cost out-of-the-box technologies can be used to improve the efficiency of detecting man-made thermal anomalies.

- **LIMITATIONS**

1. Limited Frequency Range
2. Non-Real-Time Isolation
3. Sometimes Issues with Detection and Detonation Procedure

- **FUTURE ENHANCEMENTS**

1. Can be Full Autonomous
2. Enhanced Data Set
3. Improvisation in Design

10. REFERENCES

1. Theodore S. Rappaport — "wireless communications principles and practice", Pearson education India, 2nd edition, 2009
2. "An insect inspired motion sensor for UAV" Institute of Technology (ETH), Zurich, Switzerland.
3. https://www.wikipedia.org/

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