National Conference on
"Role of Engineers in Nation Building" organized by VIVA Institute of Technology, Mumbai
(6th and 7th March 2020)
International Journal of Engineering Research & Science (IJOER)
ISBN:[978-93-5391-287-1] ISSN: [2395-6992] [Vol-6, Issue-3, March- 2020]

Drone Security Surveillance

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Abstract*—This paper gives a brief idea of Drone Surveillance technology. We all know that security is very important aspects for any civilence or any country.Many people are attacked by animals, who lived with in forest. Over the last five centuries, an estimated 1 million people have been eaten by tigers.In Southeast Asia, attacks decreases after peaking in the nineteenth century, but attacks in south Asia have remained increase, particularly in the Sundarbans. Drone security surveillance helps to surveillance such type of region where it having heat detector sensor and thermal camera view who can detect animals and gives security alerts . It can also use in army at border surveillance there are some region in under Indian army where 24hrs security surveillance is very difficult task. Where we can use this drone surveillance technology, which suspect intruder and give security alerts to army force.*
Keywords —Animal attacks,Drone, Heat Detector Sensor, Security Surveillance, Thermal Camera.

I. INTRODUCTION

This research paper based on solution for two major problems in our country. In India yearly many peoples are suffered from animal's attacks who lived with in forest or green zone for example Mumbai aarey colony, Sundarbans National Park. Also Indian defense force facing same type of problems where army needs to 24/7 surveillance on border area but at some place due to natural cause 24/7 surveillance is difficult task. Theintruder takes advantage such situations and tries to penetrate border surveillance. Drone security surveillance is the solution for those major problems.In today's world, every one of us needs security every one want to be remain safe from any danger. Thus we use technology in every sector whether household or industrial purpose to get our work done easily. Traditional way to be connected all the time and access information easily is through newspapers television, internet but this is the advanced way to get quick information about any animal attack or any suspicious activity nearby border with drone.

II. SYSTEM IMPLEMENTATION

This paper describe the working of drone which would allow us to detect presence of animal nearby human living in green zone also to detect presence of any intruder near border, so list down the hardware and software required for implementing this concept of surveillance drone.

Thistechnology is the use tocaptures ofvideo record to collect information about specific targets or intruders and gives alerts signal to appropriate receiver.

FIGURE 1: A UAV fitted with a camera for Security surveillance.

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2.1. Movement System

2.1.1 Frame

The frame is important because it is where to put the Other Components of drone. The most of mini and micro frames are cut from carbon fibre sheet. The frame can be made up of material such as Aluminium, PCBs Fibre, Carbon fibreetc. Drones are divided into different types such as Bicopters – 2 engines, Tricopters – 3 engines, Quadcopters – 4 engines etc.

FIGURE1:*Frame*

2.1.2 Heat Detector Sensor

Thisdevice which can able to capture heat which is emits by any material or any animal or intruder.

FIGURE 2 : Heat Detector Sensor

2.1.3. Motor OR Rotor:

Motor are used to produced torque which can lift drone body. Brushless motors are better than brushed DC motor whereas brushed motor 85% efficient then brushed DC motor.

FIGURE3:Motor OR Rotor

2.1.4. ESC (Electronic Speed Controls)

It is a important component because it controls rotation of blades which is provided by motor. For drone we need four pieces of ESC that are connected to each motor.

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FIGURE4: ESC (Electronic Speed Controls)

2.1.5. Flight Controller

This is the central component of a Quadcopter. helps to determine the orientation of drone and accelerometer sensor that reads the speed and slope of the quadcopter.

FIGURE5: Flight Controller

2.1.6 Propeller

It used in two pair's one rotates clockwise and another rotates opposite direction.The engine makes the propeller spin round and causes the drone to move.

Figure 6: Propeller

2.1.7 Wireless Charger Pad

This is a wireless charging pad which use to charge drone wirelessly which help drone to continue surveillance without any pause.

Figure7:Wireless Charger Pad

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2.1.8 Battery

It is rechargeable battery which can charge itself by wireless charger.

Figure8:Battery

2.1.9 Thermal camera

This is a thermal camera, which can detect (human/animal) heat in surveillance area.

Figure9: *Thermal camera*

2.2 Software

It is a software, which can receive red alerts, which are coming from surveillance drone.Software is based on android or any environment friendly programing language. This development also continuously makes UAVs possibly more autonomous as algorithms required.

III. Working

- We have to set a particular region to the drone where they are surveillance.
- We are using drone A and drone B both drone are interconnected with each other that's means when drone A complete his task and back to the base station when drone B are ready to take takeoff and take position of drone A and start to surveillance now drone A start to charge his battery by wireless charging which is attached to its base station. When drone B are back to the base station then drone A start to take takeoff and take position of drone B and drone B starts to recharge his battery, this all activity will process 24/7 without any disturbance.
- When any drone found some suspicious activity in his thermal camera that drone will send alert message to the software to make awareness.

3.1 Algorithm for drone flight surveillance

Step 1: start
Step 2: Drone A take takeoff start to surveillance to pre-decided region.
Step 3: After completing one round Drone A get back to the base.
Step 4: Drone B take takeoff start to surveillance to pre-decided region.
Step 5: Drone A start to recharge its battery.
Step 6: Drone B get back to its base, start to recharge its battery.
Step 7: Drone A take takeoff.

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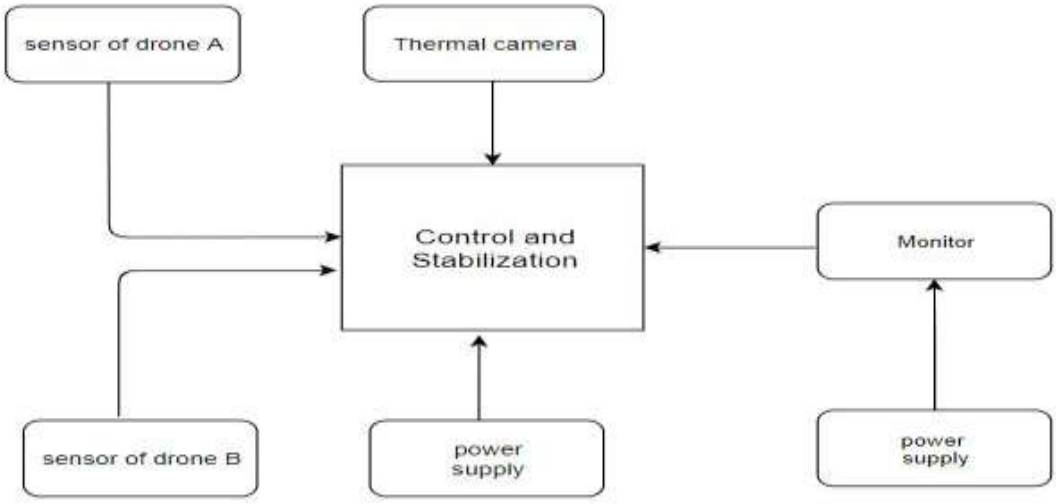

Figure 9: Block diagram of drone surveillance

IV. Advantages of drone surveillance

4.1It is very much help full to capturing animal attackson people.

4.2 It is also helps to spread awareness betweenpeoples who lives in green zone area for if any animal enteredin civilian area.

4.3 It can play major role in border security surveillance where, there are some place where 24/7 surveillance is difficult task.

IV. Environmental Challenges

Environmental challenges involve rain, wind, humidity, temperatureetc. In experiments we have observed that the power intake may depend significantly more on environmental conditions such as side winds than on either the payload or the altitude.

Generally speaking, the environment the device is intended to operate in will influence the choice for device and hardware. The more specialized an application is, the more specialized the operational requirements regarding the environment may get, and it is important to clearly define the specifications of environmental conditions beforehand. In jungle sometimes because of natural cause, jungle catches fire so in such condition drone cannot suspect intruder properly. Because there are many things, which emits heat, so thermal camera cannotdistinguish.

V. CONCLUSION

This drone technology will help humans to surveillance at un-reachable place. It mostly useful in jungle and for army for surveillance.Due to an increase in the availability and diversity of reasonable hardware, and the performance of virtually all applicable sub-systems, and due to the immense decrease in cost and difficulty to operate, UAVs are rapidly becoming a common part of a variety of applications. We make the distinction between sensing hardware and actuators, both of which can be mounted onto UAVs to become specialized devices.

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