RAMAIAH
Institute of Technology

Department of
Computer Science and Engineering

Social Activity Report
On

DRONE WORKSHOP BY FLYCAMP

Submitted in partial fulfillment of the Requirements for the award Bachelor of Engineering degree in Computer Science & Engineering

By

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CERTIFICATE

This is to certify that the Social Activity entitled "Drone Workshop" is a bonafide record of the Social Activity for 100 point activity carried out by ***Gaurav V (USN.1MS18CS046)*** *under my guidance, in partial fulfilment of the requirements for the Bachelor of Engineering, Computer Science & Engineering from M S Ramaiah Institute of Technology, Bangalore for the academic year 2019-2020.*

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I would like to extend my gratitude to the HOD of the Computer Science Department and our proctor for inspiring us to take up this activity and guided us and helped us in every way possible and provided us an opportunity to understand how drones are made and how important they in the future.

I would also like to thank the mentors of FlyCamp for teaching, guiding and helping us so patiently throughout the workshop.

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ABSTRACT

Technology has always been evolving with time with many fascinating developments like smartphones, etc. But the intriguing development has the unmanned aerial vehicle or better known as drones. Initially, the drone industry was never used for anything more than sport and maybe the occasional toy for children. But as time went on many saw the bigger picture in how the drones can be used in various aspects like the military, delivery services, etc. As more and more advancements were made in the drone industry more discovery for their uses are also growing.

The FlyCamp workshop taught us both the practical and theoretical aspects of drones. We learnt about drone movement and its structure. And also learnt how to control the drone during flight.

CONTENTS

CHAPTER 1
INTRODUCTION

An unmanned aerial vehicle (UAV) (or un-crewed aerial vehicle, commonly known as a drone) is an aircraft without a human pilot on board. UAVs are a component of an unmanned aircraft system (UAS); which include a UAV, a ground-based controller, and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers referred to as an autopilot.

Compared to crewed aircraft, UAVs were originally used for missions too "dull, dirty or dangerous" for humans. While drones originated mostly in military applications, their use is rapidly finding many more applications including aerial photography, product deliveries, agriculture, policing and inspections, structure surveillance, drone racing, etc.

Drones have been making waves in society in recent years and more people want to own these devices. With this attention and the number of people using it many innovative techniques have been developed in using them.

CHAPTER 2
DRONE APPLICATIONS

1)Drones have served as a deterrent to poachers. They provide unprecedented protection to animals, like elephants, rhinos, and big cats, a favourite target for poachers. With its thermal cameras and sensors, drones have the ability to operate during the night. This enables them to monitor and research on wildlife without causing any disturbance and provides insight on their patterns, behaviour, and habitat.

2) Available to amateurs and professionals, drones can acquire very high-resolution data and download imagery in difficult to reach locations like coastlines, mountaintops, and islands. They are also used to create 3D maps and contribute to crowd sourced mapping applications.

3) Major companies like Amazon, UPS, and DHL are in favor of drone delivery. Drones could save a lot of manpower and shift unnecessary road traffic to the sky. Besides, they can be used over smaller distances to deliver small packages, food, letters, medicines, beverages and the like.

4) Drones are now being used to capture footage that would otherwise require expensive helicopters and cranes. Fast paced action and sci-fi scenes are filmed by aerial drones, thus making cinematography easier. These autonomous flying devices are also used in real estate and sports photography. Furthermore, journalists are considering the use of drones for collecting footage and information in live broadcasts.

5) Drones are being developed to provide entertainment for players so that they can be used in fight clubs. Known as a cage match, two contenders and their drones are put up against each other. The destruction of any of the player's drones results in the other's win. Moreover, artificial drone intelligence is used in several ways to capture videos and photographs.

CHAPTER 3
ABOUT FLYCAMP

FlyCamp is a company of drone enthusiasts based in Bangalore with the aim to share the drone experience to many individuals. As drone researchers, pilots and teachers they wish to spread their knowledge to many students so that they recognise the need for this fast evolving technology. Their aim is to inspire the young minds to go beyond their imaginations when it comes to this technology.

They offer many webinars and organise many workshops in schools and colleges. They employ many students into three departments mainly Camper(where you can seek to be part of their adventures), Trainer(where you have the opportunity to teach other like-minded students) and Researcher(where you can explore new innovations).

CHAPTER 4
DETAILS OF IMPLEMENTION OF THE ACTIVITY

The activity was conducted in our 4th semester on 10th March,2020. The FlyCamp representatives came to our campus and gave a brief introduction of their company, their goals, what they wish to accomplish with the workshop they are conducting and a brief highlight of their journey they took.

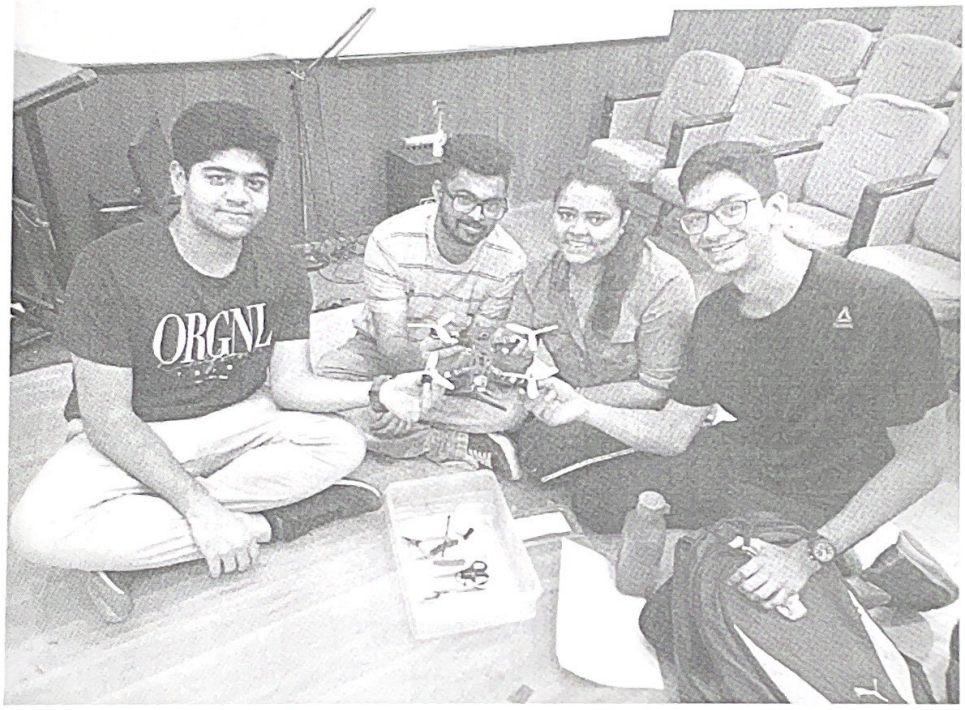
The workshop started with a theory session on drones followed by a practical one. The theory session included an introduction to drones and had many videos of drones being used in many fields. They showed us drones can be used in ways more than for entertainment. They gave us names of various websites in order to increase our basic knowledge of drones. They explained the technical terms of UAVs and their basic structure, the physics behind the movement of the drones. They also taught us the usage of drones in different industries such as military, agriculture, photography, etc.

Then came the practical session of the workshop where they divided us into two batches each of which will work on building a drone and flying one in a course they made. They made us form teams and each team was given a basic kit for building the drone. A FlyCamp representative explained each component to us and helped us as we built our drone. After building the drone, came the part where we get to fly one. First, they taught us how to fly a drone on a simulation where we learnt to control a drone on a computer. They showed us the various controls and helped us practice them. After we grew comfortable with controlling a drone the let us fly an actual one in a course set by them. After this, the workshop came to an end.

CHAPTER 5

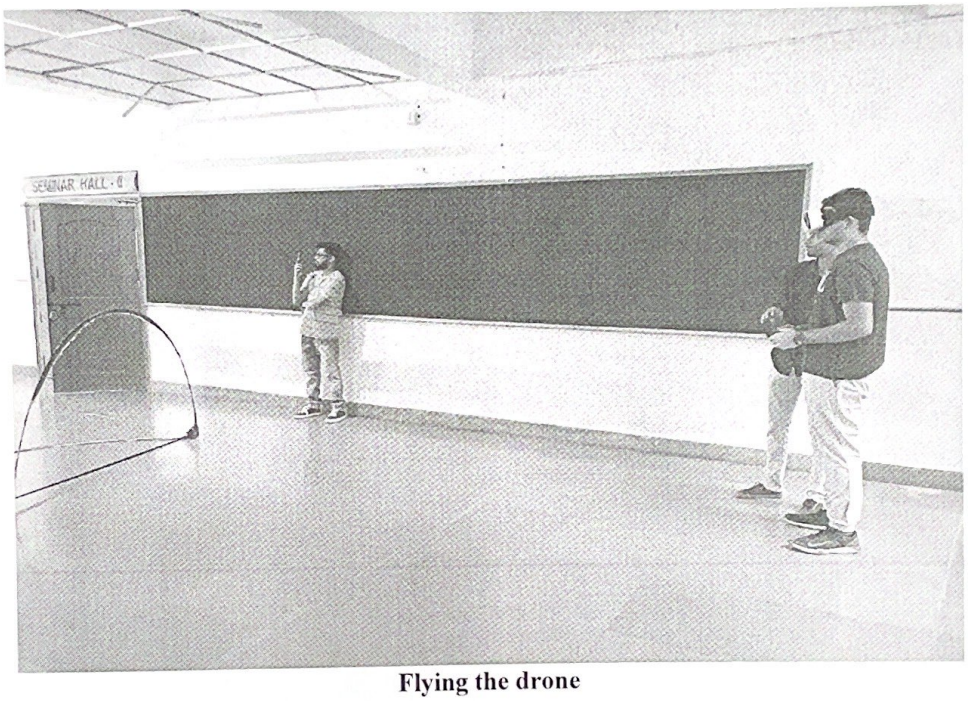
OUTCOME ANALYSIS OF SOCIAL ACTIVITY

We had carried out the activity on 10th March,2020. We learnt about the structure and physics behind drones in detail. We learnt about various parts of the drone and the purpose of each of these parts. We learnt about how the rotors helped in gliding the drone in various directions. We had to tightly fit every component to avoid failure of the drone. We learnt about manoeuvring the drones in a practical manner. Below are some of the photos taken during the workshop.



After completion of drone building

Process of building the drone



Flying the drone

CHAPTER 6
CONCLUSION

The workshop conducted by 'FlyCamp' gave us a whole new look on UAVs. We learnt that drones can be used in various fields other than entertainment. It also reminded us the importance of technology, innovation and invention.

The workshop highlighted the importance of core concepts and how we can apply what we learnt in a classroom in an innovative way. We learnt about the importance of drones in the future and how we use them in various ways and in different fields.

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