

PROFESSIONAL TRAINING REPORT

Sathyabama Institute of Science and Technology

(Deemed to be University)

**Submitted in partial fulfillment of the requirements for the award of Bachelor of
Engineering Degree in Electrical and Electronics Engineering**

By

E.Narmadha

(Reg.No. 39140033)



**DEPARTMENT OF ELECTRICAL AND ELECTRONICS SCHOOL OF ELECTRICAL AND
ELECTRONICS**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

Accredited with Grade "A" by NAAC

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600119

NOVEMBER 2021

SCHOOL OF ELECTRICAL AND ELECTRONICS

BONAFIDE

CERTIFICATE

This is to certify that this Project Report is the bonafide work of E.Narmadha(39140033) who carried out the project entitled "Drone** Internship" under our supervision from June 2021 to November 2021.**

INTERNAL

GUIDE

**HEAD OF THE
DEPARTMENT**

Dr.SIVACHIDHAMBARANATHAN

M.E.,Ph.D.,



Ref: BTOIPS21/SEP2021/771

07 October 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Narmadha E (19S149006)** of **Electrical and Electronics Engineering** Department from Sathyabama Institute of Science and Technology has attended and successfully completed **15 days Drone Internship** from 23 September to 07 October 2021 via Online Medium through our Platform.

We wish her all the best in future endeavors.

Regards,



S. Karan

DECLARATION

I (E.Narmadha) hereby declare that the Project Report entitled “Drone internship”done by me under the guidance of , is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology degree in Information Technology.

DATE:

PLACE:

SIGNATURE OF THECANDIDATE

ACKNOWLEDGEMENT

The satisfaction and elation that accompany the successful completion of any task would be incomplete without the mention of the people who have made it possible. It is our great privilege to express our gratitude and respect to all those who have guided me during the course of my Professional Training.

First and foremost, we would express our sincere gratitude to our beloved Founder Chancellor Col. Dr. JEPPIAAR, M.A., B.L., Ph.D., I extend my sincere thanks to our Chancellor Dr. Mariazeena Johnson, B.E., M.B.A., M.Phil., Ph.D., and the President Dr. Marie Johnson, B.E., M.B.A., M.Phil., Ph.D., for providing me the necessary facilities for the completion of the professional training. I also acknowledge our Vice Chancellor Dr. S. SundarManoharan Ph.D., and the Pro Vice

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I would like to express our gratitude to our Registrar Dr. S. S. Rau, Ph.D. and Controller of Examinations Dr. IgniSabastiPrabu M.E., Ph.D., for their valuable support offered to complete my professional training successfully.

I like to express our gratitude to Dr. SIVA CHIDAMBARANATHAN M.E. Ph.D .Head of the Department of electrical and electronic engineering, Sathyabama Institute of Science and Technology for having been a constant source of support and encouragement for the completion of the professional training.

I would also like to express our sincere thanks to our internal guide who guided me in the preparation of the report.

Also, I thank the Almighty and my Parents for supporting me in the completion of the professional

COURSE CERTIFICATE



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ABSTRACT

In the modern world with increase in the technology there is equal growth in automobiles which creates traffic leading to sound pollution, traffic jam and air pollution. So it take more than required time to reach from one place to another, thus we must look

forward to some Airways. In the modern world with increase in the technology there is equal growth in automobiles which creates traffic leading to sound pollution, traffic jam and air pollution. So it take more than place to another, thus we must look forward to some airways. In the modern world with increase in the technology there is equal growth in automobiles which creates traffic leading to sound pollution, traffic jam and air pollution. So it take more than place to another, thus we must look forward to some Airways.

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List of components component name and price:

MODEL	DESCRIPTION	PRICE	INR	REFERENCE	PICTURE
FRAME HJF 450	PROPELLER ABS PLASTICK (RED)	800			
4NOS	MOTOR A22212/10T1400KV	517			
4NOS	ESC SIMONK (RED) 30A	999			
4NOS	BATTERY 3S LIPO 5200 MAH	3200			
	FLIGHT CONTROLLER KK 2.1.5				
	FLIGHT CONTROLLER WITH INBUILT MPU 6050 GYRO				
	MODULE	1699			
	TRANSMITTER/ RECIEVER FSCT6B				
	LANDING GEAR SUNROBOTIX	2899			
	LANDING GEAR MUKTY COPTER AND DIY DRONES	295			

SYSTEM OVERVIEW :The system consists of KK2.1.5 Multi-rotor board, transmitter, receiver, Lipo battery, electronic speed controllers, motors, and frame

9. 4. KK2.1.5 KK 2.1.5 is a board with ATMEGA 644PA, 8-bit AVR RISC based microcontroller with 64K of memory. It is easy for the beginner to start with and has firmware pre-defined in it. While activating or deactivating the board there is an audio warning from the piezo buzzer of KK 2.1.5. It is the most stable board because it has inbuilt gyroscope, 6050 MPU, and auto level function. This board has eight motor outputs, five control inputs, an LCD display, polarity protected voltage sensor input, an ISP header, six-axis accelerometer/gyroscope, a fuse protected piezo output. The user-defined signals from K.K. board are processed by ATMEGA 644PA IC and these control signals are passed to the ESC's installed on the frame of the drone. Microcontroller Atmega 644PA Operating Voltage 1.8-5.5v Input Voltage 4.8-6.0v Gyro./Acc. MPU 6050 Memory 64KBytes Signal from Receiver 1520us(5channels) Signal to ESC 1520us Pin count 44 Software required Pre-installed Size 50.5mm X 50.5mm X 12mm

Table 1: Specifications of KK2.1.5 Board

1.1 INTRODUCTION

A Drone has the potential for performing many tasks where humans cannot enter, for example, high temperature and high altitude surveillance in many industries, rescue missions. A Drone has four propellers with motors that generate the thrust for lifting the aircraft. A drone is also called as the Quad copter. The basic principle behind the quad copter is, the two motors will rotate in the clockwise direction the other two will rotate in an anticlockwise direction allowing the aircraft to vertically ascend. While taking the flight with the help a camera we can have live streaming and capture images.

CHAPTER-1

:

Fabricating and assembling of non-powered glider.

You will learn to fabricate and assemble Barola's design patented applied and award winning fixed wing non powered glider using locally available materials.

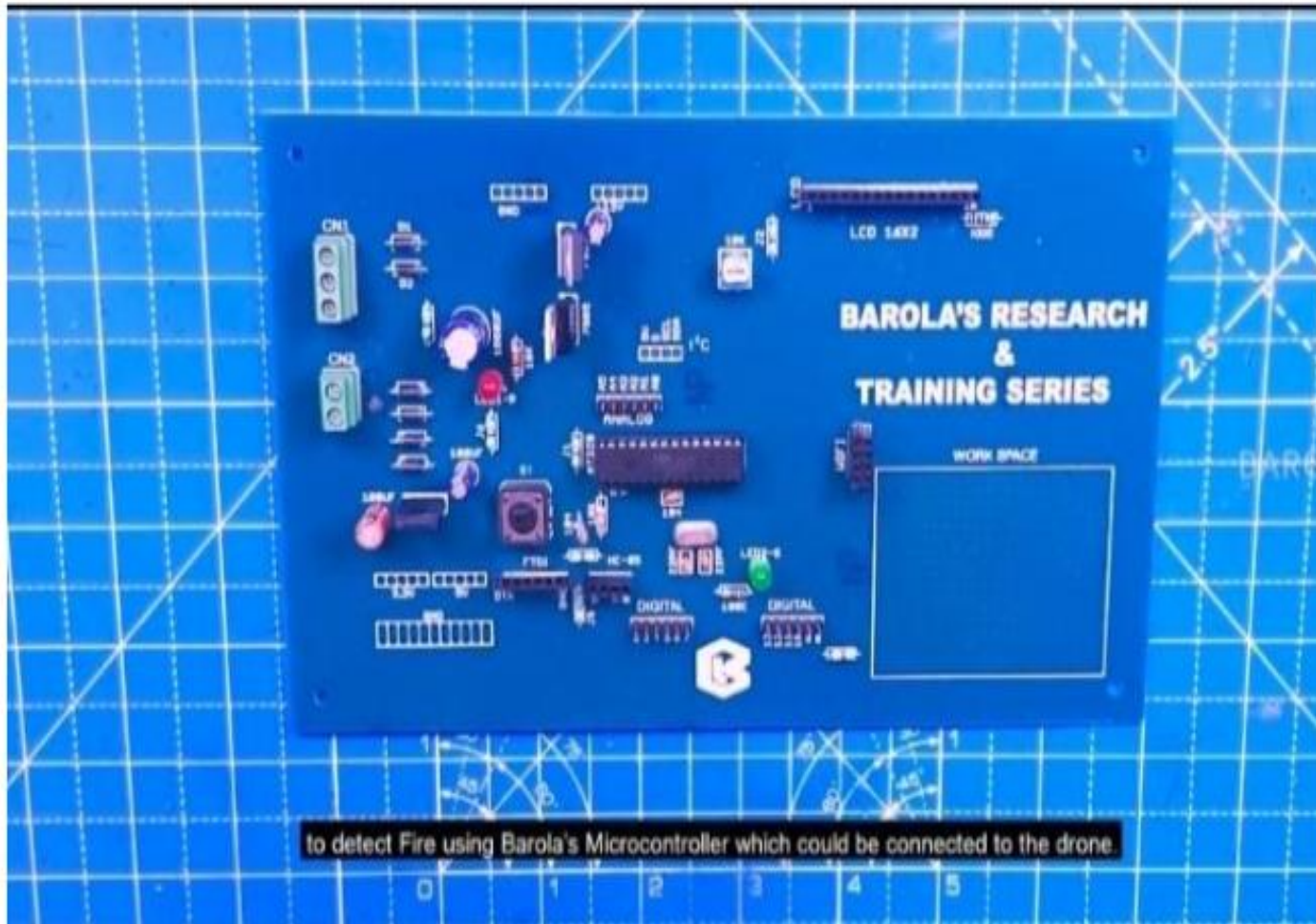
Application:

***Some of the application of agriculture management are:**

1.Crop monitoring

2.Pesticide spraying

3.Farm mapping



CHAPTER-2

fabrication and assembling multi-rotor Quadcopter frame:

You will learn to fabricate and assemble a multi-rotor quadrant frame using locally available materials.

Application:

***some of the application of healthcare are:**

- **Drone Ambulance**
- **Organ & blood transportation**
- **Emergency supplies**

***Some of the application of writeable technology are:**

- **Mind controlled drones**

some of the application of enforcement are:

- **Surveillance**
- **Search & rescue operation**

- **Traffic management**

CHAPTER- 3:

You will learn to work with digital port by connecting the fire server with auto alert system, programming it, and visualizing the output.

Application:

***Some of the application are:**

- **Drone based RDMA(Rapid Disaster management**

application)

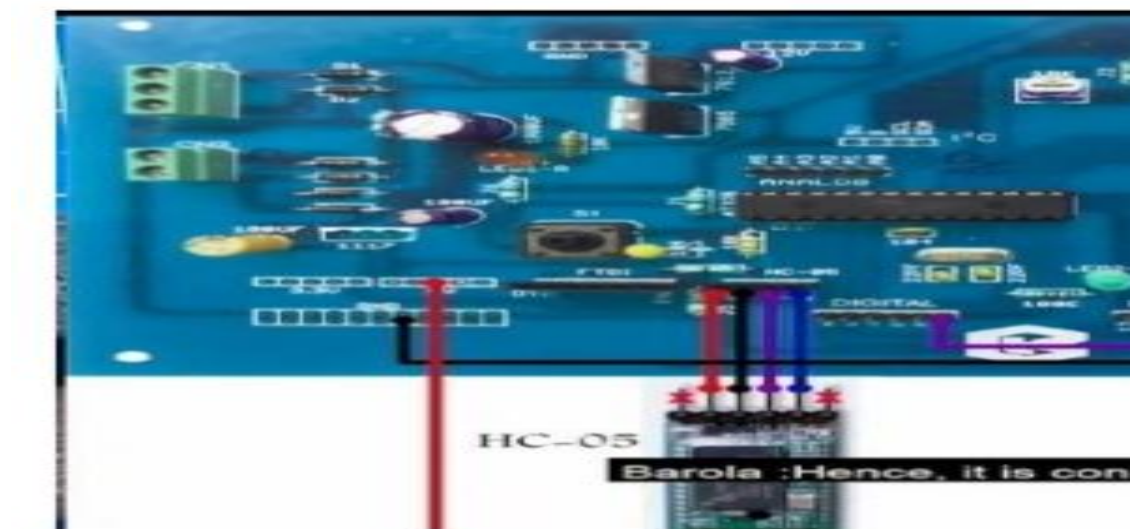
- **Forest fire application**
- **Building fire application**

CHAPTER-4:

You will learn to work with the bluetooth port by connecting the bluetooth module with the sprayer motor, and will create an android mobile application to control the motor for the pesticides spraying project or POC android mobile application.

*some of the application are:

- Drone-based farming application
- Controlling device from short.

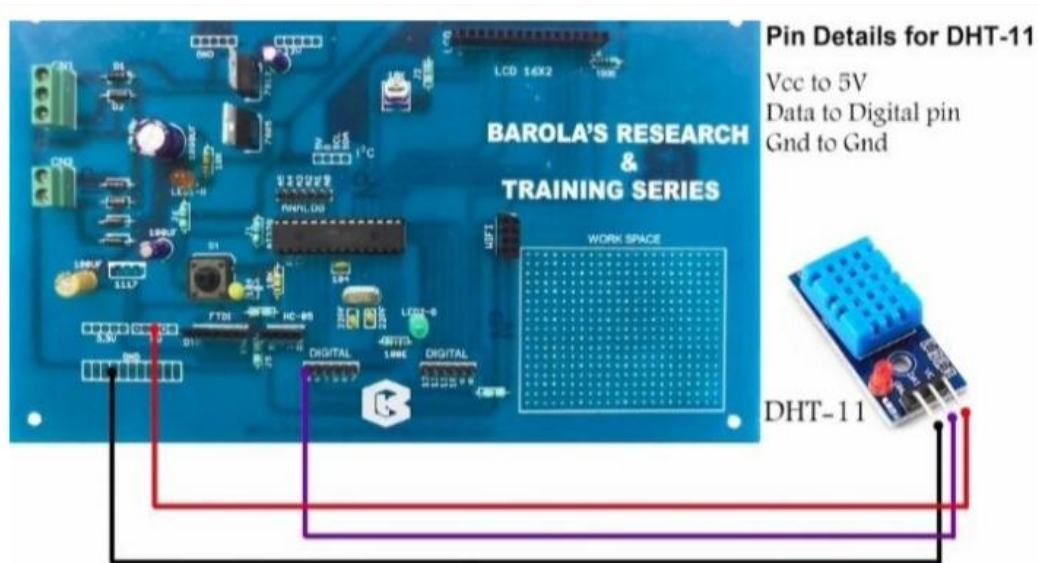


cHAPTER-5:

You will learn to work with the analog port by connecting the IR pulse sensor, programming it, and visualizing the output in the serial plotter.

***Some of the application are:**

- Drone Ambulance**
- Fitness assistant device**
- Medical monitoring device**



CHAPTER 6:

Weather monitoring application:

- ❖ Connecting DHT11 sensor to barola microcontroller visualizing the output in the serial monitor.
- ❖ Integrating the wi-fi module and connecting it to the IOT server.

You will learn to work with the wi-fi port by connecting the ESP8266 wifi module with the DHT11 which is humidity and temperature sensor and will create an account in the IoT.



Why do we used barola' s microcontroller and integrated with open source platform?

Barola's Microcontroller is an In-house developed Microcontroller, Made in India.

We use open-source platform as, it reduces the license cost for students, it is flexible and adaptable, more transparency and constant improvements are a hallmark of open-source platform.

Poc (proof of concept) is always a challenge at low-cost, but not anymore as Barola's Microcontroller can be integrated to any open source platforms like Arduino, Python, which helps to bridge the gap between a reliable hardware and software and allows you to

Conclusion:

Learn the Basics of Fabrication, Drovionics (Drone+Electronics) and soldering.

You will learn and understand the knack of building Glider, quadcopter, and will learn to Fabricate and assemble all the parts.

Understanding Tools, power system and knowing the right and smart way to build Models.

You will be in a position to create customized Mobile Applications.

Learn to work with user friendly coding environment and create simple programs for Applications like Agriculture Management, Disaster Management and weather monitoring using Open-source Platform.

You will be in a position to store the sensor parameters data in the Internet

Career prospects:

Some of the areas in Industrial fields Anti- Collision and Anti- Drone Industries.

Civilian and military Applications based industry.

Communication & Controlling.

Reliable Power System and fail-safe Management.

Renewable Energy Support System like Solar Systems,
Hydrogen fuel cell

etc.Designing & Fabrication Industries

Benifits of Drone Technology:

Drone sales are on the rise with each passing year, and more and more people are embracing the idea of owning such devices. With all this attention, these unmanned aerial vehicles are now finding more practical and innovative uses and applications.Drones are no longer just for the supreme enthusiasts, as these devices have penetrated the world of technology .

Reference:

R.Banga"Building a Quadcopter using a kk 2.1.5 flight controller" in instructables on June 25,2015.

Prepared by:

E.Narmadha

B.E-EEE



Thank you!!!

