KINGS COLLEGE OF ENGINEERING
Recognised under 2(f) & 12(B) of UGC
Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

ACCREDITED WITH GRADE B++ NAAC

A REPORT

ON

National Level Training Programme on

"INNOVATIVE PROJECT DEVELOPMENT USING IOT"

21st August 2023 & 22nd August 2023

Organized by

Department of Electronics and Communication Engineering

KINGS COLLEGE OF ENGINEERING, PUNALKULAM

A NAAC Accredited Institution

Recognized under 2(f) & 12(B) of UGC

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

Phone : 04362-282474, 282395 Website : www.kingsindia.net

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A Glimpse on the Background of the National Level Training Programme on "Innovative Project Development using IoT":

In KCE, Department of Electronics and Communication Engineering and IEEE Student Branch of our college, organized a National Level Training Programme on "Innovative Project Development using IoT" on 21st August 2023 & 22nd August 2023.

Our main aim is to enable each one achieve their individual purpose in life, through the guiding light of knowledge. Each one is empowered to pursue dreams and passions in a meaningful and responsible manner. Each one is encouraged to foster professional development through imagination, innovation, specialized knowledge and critical-thinking. Our institution created such a platform, where individual can participate to share their unique thoughts and to add values in research.

The scope of this workshop is to share individual knowledge/concepts at a common platform, to support IoT experiments to benefit academic and research community in improving the knowledge of IoT hardware & software infrastructure and to provide solution to technical problems.

Objectives:

- National Level Training Programme provided a perfect platform for budding engineers to discuss their latest research results, ideas, developments and applications in all areas of Electronics.
- Furthermore, the workshop was a trigger for their further related research and technology improvements.

Thrust Areas:

- Embedded and Real Time Systems
- Signal & Image Processing
- Internet of Things
- VLSI Design
- Artificial Intelligence & Data Science
- Wireless Sensor Networks
- Wireless Communication &
- Other emerging topics in the field of ECE

OVERVIEW OF THE NATIONAL LEVEL TRAINING PROGRAMME ON "INNOVATIVE PROJECT DEVELOPMENT USING IOT":

ABOUT THE ORGANIZING COMMITTEE & RESOURCE PERSON:

Mrs. N.Mangaiyarkarasi, HOD/ECE was the convener of the National Level Training Programme on "Innovative Project Development using IoT". Mrs.U.Jeyamalar, AP/ECE & Mr.R.Thandayuthapani, AP/ECE were the Workshop Coordinators.

The resource person for the workshop was Ms.H.Hajitha Banu, Embedded Specialist in Jadayu Enterprises, Thanjavur, Mr.T.Jeyaseelan, M.E., Assistant Professor, Department of ECE and Dr.P.Narasimman, M.E., PhD., Assistant Professor, Department of EEE, Kings College of Engineering, Pudukkottai.

ABOUT THE REGISTRATION PROCESS:

The workshop was planned to conduct in physical mode. The registration link was created. The registration link through Google form and the link was posted in various whats app groups. External college students accepting our invitation and we have received responses from various colleges through registration link.

Registration Link: https://tinyurl.com/kingsProjectDev

We have received 39 responses from various institutions. Before three days of the workshop, we have stopped receiving the registration responses. Instructions were given to the participants through the respective whatsapp group.

ABOUT THE WORKSHOP:

The workshop was started at 10.00 a.m with 39 External participants.

The two day National Level Training Programme on "Innovative Project Development using IoT" was organized for the benefit of students community those who are interested to implement their innovative ideas using the arduino Kit. The workshop conducted on 21st August 2023 & 22nd August 2023. Totally 39 external participants have enthusiastically participated in this workshop.

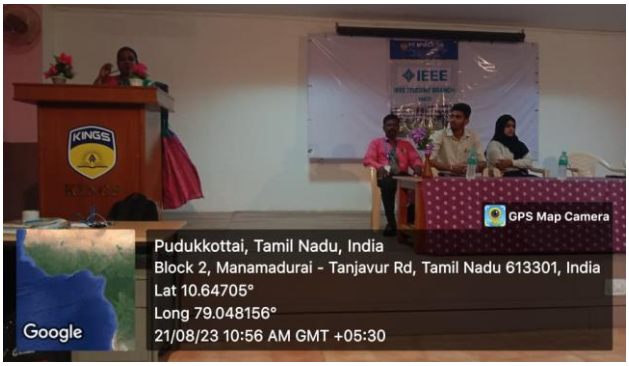
The workshop started with Tamil Thaai Vaalthu. Ms.U.Jeyamalar, Assistant Professor / ECE welcomes the gathering and introduced the Resource persons. Mrs.N.Mangaiyarkarasi, HOD/ECE delivered the Inaugural address. In her speech, she motivates the students towards innovation and how the workshop helps the students to do their ideas in implementation. The resource person details were as follows:

Day-1-Session -1: Ms.H.Hajitha Banu, Embedded Specialist, Jadayu Enterprises, Thanjavur.

Day-1-Session -2: Ms.H.Hajitha Banu, Embedded Specialist, Jadayu Enterprises, Thanjavur.

Day-2-Session -3 : Mr.T.Jeyaseelan, Assistant Professor/ECE, Kings College of Engineering.

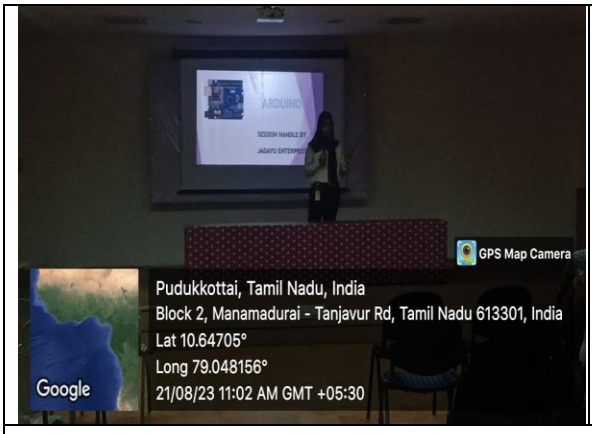
Day-2–Session-4 : Dr.P.Narasimman, Assistant Professor/EEE, Kings College of Engineering.

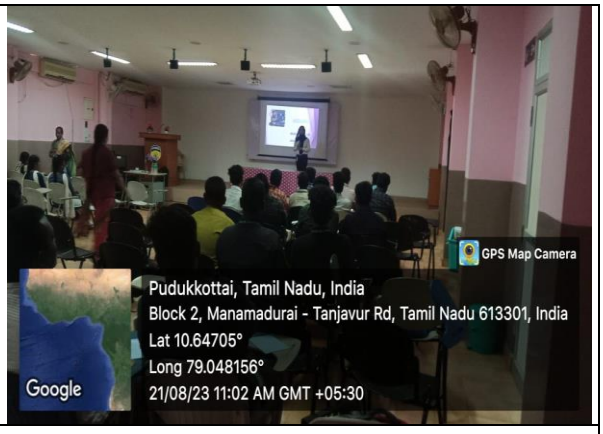
<table>
<tr><td> </td><td> </td></tr>
<tr><td>Dignitaries on the dais</td><td>Honouring the Chief Guest Mr.K.Manimaran, Software Trainee, Jadayu Enterprises by Mrs.N.Mangaiyarkarasi, HOD/ECE</td></tr>
<tr><td> </td><td>  </td></tr>
<tr><td>Welcome Address & Introduction to Chief Guest by Mrs.U.Jeyamalar Assistant Professor/ECE</td><td>Inaugural address delivered by Mrs.N.Mangaiyarkarasi, HOD/ECE</td></tr>
</table>

OBJECTIVE:

The main objective of this workshop is to train the students to do simple projects by interfacing LED's, Switches, Stepper motor and various sensors with arduino kit and programming to do various functionalities.

DAY 1 - Session 1: The resource person Ms.H.Hajitha Banu, Embedded Specialist, Jadayu Enterprises presented a brief technical note on the fundamentals of embedded system, features of Microprocessors, Microcontrollers and interfacing devices. He also explained how to develop applications in the industry based on embedded system. During the session, he demonstrated how arduino development platform is used for a typical embedded application. From the session the students have learned how to implement their ideas into projects in a simplest way of using arduino.





Resource Person Ms.H.Hajitha Banu, Embedded Specialist, Jadayu Enterprises delivering the lecture to the Participants

Participants eagerly listening the resource person's lecture & demonstration

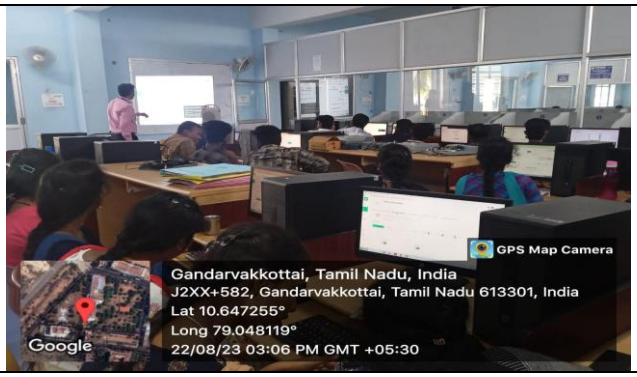
DAY 1 - Session 2: The resource person Ms.H.Hajitha Banu, Embedded Specialist, Jadayu Enterprises, delivered a complete description about the arduino pin configuration, architecture and interfacing methods. He explained various blocks in the arduino development kit, he also trained the students about embedded C Programming using arduino IDE, which is freely available for the students. The session continues with hands on mode, the students are formed with small groups and were trained to do simple projects like LED interfacing, buzzer interfacing and switch interfacing. The participants actively performed their assigned work in an enthusiastic manner.

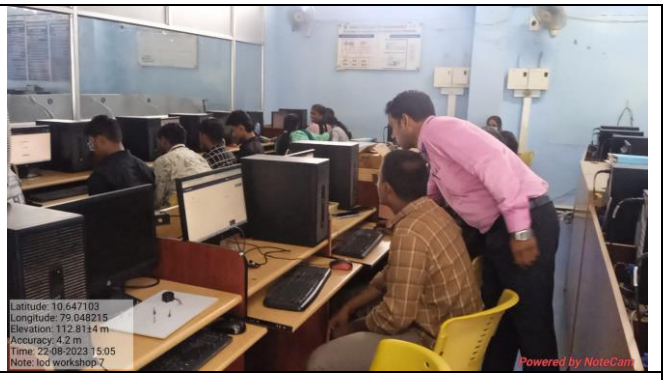
DAY 2 - Session 3: Mr.T.Jeyaseelan, Assistant Professor/ECE, demonstrate the students with LCD interfacing. He takes 2 x 16 LCD and explains the pin details and interfacing methodology and also trained the students, how to read temperature and humidity data from DHT11 sensor and display the sensor data's in the LCD display. In this session students had shown their interest to get the data from the sensor given to them and displayed the values in the LCD display. He demonstrated how analog to digital data conversion is used in temperature and humidity monitoring applications.

During the session, he explained about ultrasonic sensor interfacing with arduino board, he demonstrated a sample project titled ultrasonic based water level indication system. Students grouped into different batches. The batches were assigned with different projects. Students were interactive and also developed embedded c program for their project. Finally, they interfaced with ultrasonic sensor to Arduino board and assembled the project successfully and verified their output of the project.

Resource Person Mr.T.Jeyaseelan, AP/ECE , KCE delivering the lecture to the Participants

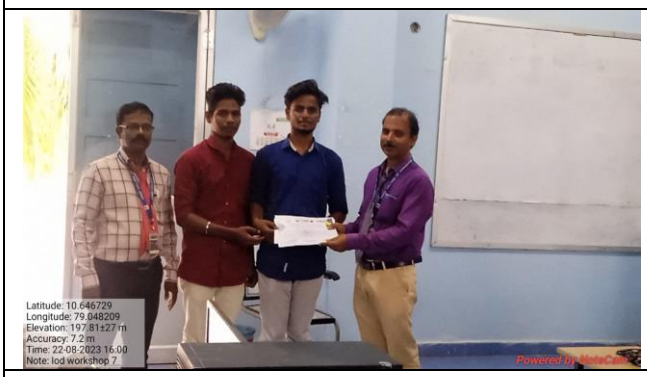
DAY 2 - Session 4: Dr.P.Narasasimman, Assistant Professor /EEE, he demonstrated Matlab interfaced with Arduino related projects with an example "IOT based temperature monitoring using Thingspeak and Arduino hardware". He explained in detail about how to create a ThingSpeak™ channel and use MATLAB® functions to collect the temperature data from a BMP280 sensor connected to your Arduino® board, and then use MATLAB Analysis in ThingSpeak to analyze the maximum and minimum temperature and also shows how to set up an email alert if the room temperature exceeds a threshold value, by using MATLAB functions in ThingSpeak. Students implementing this project using three hardware components such as Arduino Uno, Arduino Sensor Kit – Base and BMP280 sensor. Finally he outlined typical project ideas and explained the methods for implementing these ideas. The students were interactive during the sessions and asked their queries.





Resource Person Dr.P.Narasimman, AP/EEE , KCE delivering the lecture to the Participants

Finally the session ends with valedictory. Mr.R.Thandayuthapani, AP/ECE, delivered the Vote of Thanks. The certificates were distributed by Mrs.N.Mangaiyarkarasi, HoD/ECE. Thus the workshop was successfully ended.



Certificate Distribution

Outcomes:

At the end of this workshop the students can able to

- Gained more knowledge on Arduino components and IDE.
- Do the small projects based on Embedded C Programming.
- Interfacing their projects using Analog and digital converter.
- Interfacing with sensor and wireless connectivity to arduino.
- Design the Mini projects using arduino.

Coordinator(s) **HOD/ECE** **PRINCIPAL**

Annexure: I

BROCHURE

KINGS COLLEGE OF ENGINEERING
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NAAC B++

National Level Training Programme on Innovative Project Development using IoT

21/08/2023 to 22/08/2023

Jointly organized by

Department of
Electronics & Communication Engineering
&
IEEE STB 16621
Kings College of Engineering,
Punalkulam, Near Thanjavur,
Tamilnadu.

Chief Patron

Dr. R.Rajendren,
Secretary

Patron
Dr.J.Arputha Vijaya Selvi,
Principal

Convener
Mrs.N.Mangaiyarkarasi,
HOD/ECE

Coordinators
1. Mrs.U.Jeyamalar.
   AP/ECE
2. Mr.R.Thandayuthapani
   AP/ECE

REGISTRATION:

Participants are requested to apply via online using the link (or) QR code given below. Registration fee includes workshop kit, lunch and refreshment.

REGISTRATION LINK:

https://tinyurl.com/KingsProjectDev

IMPORTANT DATE :
Last date for Registration : 18-08-2023

FEE DETAILS :
Registration Fee : Rs. 300/-
GPay No
9943347956

For Queries Please Contact:

Mrs.U.Jeyamalar - 8248859710
Mr.R.Thandayuthapani - 9943347956

ABOUT OUR INSTITUTION

Kings College of Engineering (KCE) was born out of a dream and vision to provide education with unparallel quality to the young and enthusiastic students of our nation. The College is approved by AICTE, New Delhi and affiliated to Anna University, Chennai and accredited by NAAC. The drives from our management and dedication of the faculty have seen KCE to rise to the status as one of the most prestigious institutions in this part of the country.

KCE, run by Raj Educational Trust (RET), Chennai, is a fast growing technical institution in the state of Tamil Nadu with a great promise to cater the educational demands of engineering aspirants in and around Thanjavur since 2001. Our institution offers five UG programmes namely CIVIL, CSE, ECE, EEE and Mechanical Engineering and four PG programmes namely CSE, VLSI Design, PED and Thermal Engineering. Department of ECE and Mechanical Engineering have approved research centers for pursuing research (Ph.D) under Anna University.

ABOUT THE DEPARTMENT

The department was established in the year 2001. It has well qualified and experienced staff and it continually updates it's laboratories with modern facilities. The Department imparts quality education to its students, in modern ICT class rooms equipped with appropriate teaching aids. Due to quality academic standard of the Department, the students of the Electronics and Communication Engineering programme have been consistently performing well by organizing seminars,conference and project expo regularly.

ABOUT THE WORKSHOP

Arduino workshop will focus on getting you up and running with Arduino quickly, so that you will understand the basic procedures for working with Arduino and can explore further on your own. An Arduino is a small computer that you can program to control things like lights or motors along with listening to components like motion detection sensors. It can give your project interactivity without needing an expensive and large circuit. Instead, you use a computer to program the Arduino, upload your code to the Arduino, and hook up your circuit..

SESSION DETAILS

Day 1:
Forenoon Session :
- Introduction to Arduino
- Arduino components and IDE

Afternoon Session :
- Programing with Arduino
- Tricolor LED and Push button interfacing with Arduino
- Analog to Digital Converter.
- Seven Segment Display , LCD
- Pulse Width Modulation

Day 2 :
Forenoon Session :
- ESP 32 NODE MCU IOT Platform.
- Applications using NODE MCU

Afternoon Session :
- Wireless connectivity to Arduino
- Mini Project Design Using Arduino

RESOURCE PERSONS

Dr.P.Narasimman
Assistant Professor /EEE

Dr.T.Pasupathi
Assistant Professor /ECE

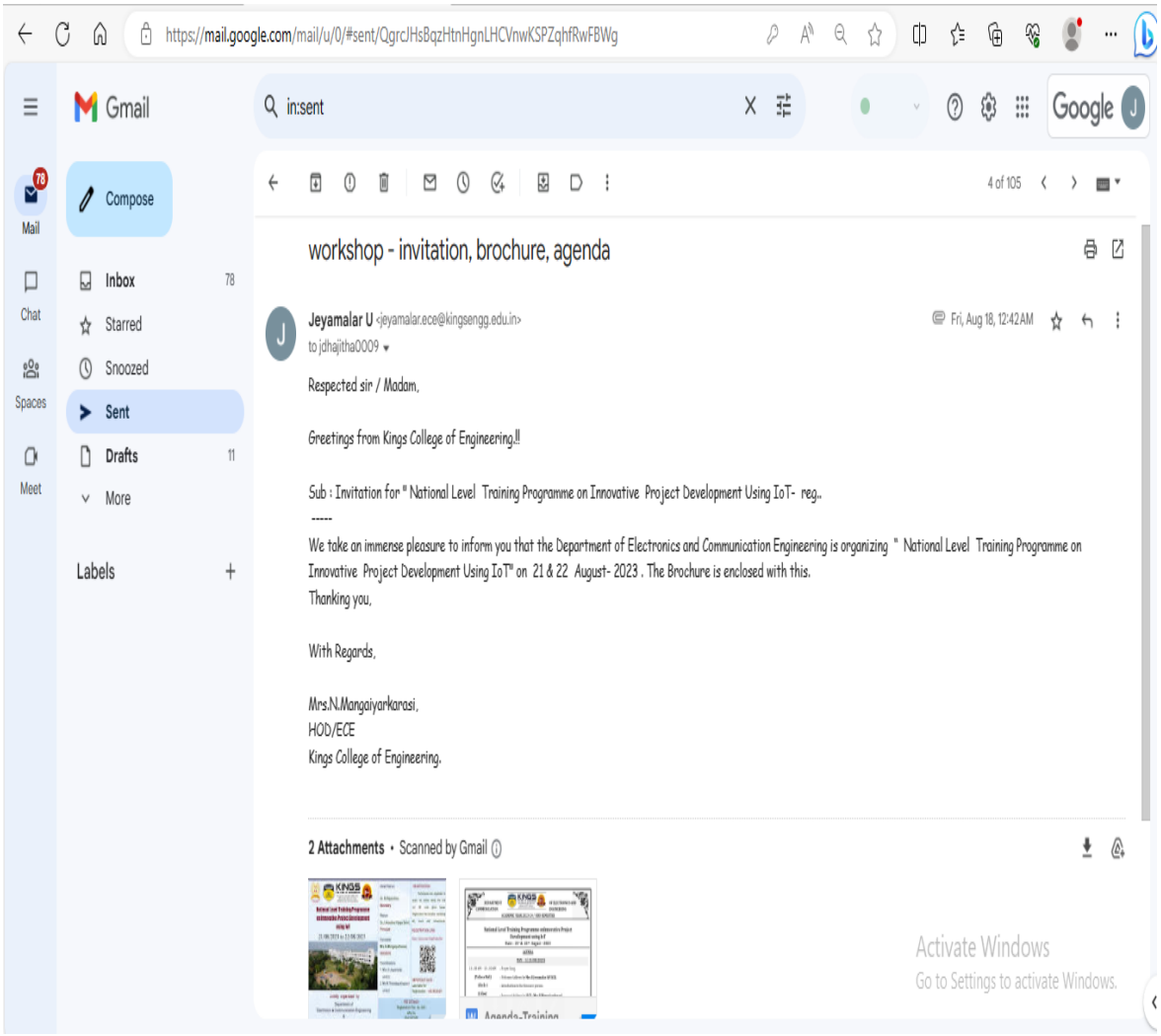
Mr.T.Jeyaseelan
Assistant Professor /ECE

Mr.P.Raja Pirian
Assistant Professor /ECE

TECHNICAL PARTNER
JADAYU ENTERPRISES , THANJAVUR

Annexure: II

CHIEF GUEST INVITATION-MAIL



Annexure: III
AGENDA

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
ACADEMIC YEAR 2023-2024 / ODD SEMESTER

National Level Training Programme on Innovative Project Development using IoT

Date : 21st & 22nd August - 2023

AGENDA

DAY – 1 (21/08/2023)

10 : 00 AM – 10 : 30 AM	: Prayer Song.	
(Pallava Hall)	: Welcome Address by **Mrs.U.Jeyamalar AP/ECE.**	
Block- I	: Introduction to the Resource person.	
II Floor	: Inaugural Address by HOD : **Mrs.N.Mangaiyarkarasi.**	
10 : 30 AM – 11 : 00 AM	: Session – 1 :**Jadayu Enterprises**	**(Pallava Hall)**
11 : 00 AM – 11 : 15 AM	: Hi – Tea.	
11 : 15 AM – 12 : 55 PM	: Session – 2 :**Jadayu Enterprises**	**(Pallava Hall)**
01 : 00 PM – 02 : 00 PM	: LUNCH.	
02 : 00 PM – 03 : 15 PM	: Session – 3 : **Mr.T.Jeyaseelan AP / ECE.**	(Venue : DSP LAB)
03 : 15 PM – 03 : 30 PM	: Hi – Tea.	
03 : 30 PM – 04 : 00 PM	: Session – 4 : **Mr.T.Jeyaseelan AP / ECE.**	(Venue : DSP LAB)

DAY – 2 (22/08/2023)

9 : 30 AM - 11 : 00 AM	: Session – 5 : **Mr.T.Jeyaseelan AP / ECE.**	(Venue : DSP LAB)
11 : 00 AM – 11 :15 AM	: Hi – Tea.	
11 : 15 AM – 12 : 55 PM	: Session – 6 : **Mr.T.Jeyaseelan AP / ECE.**	(Venue : DSP LAB)
01 : 00 PM – 02 : 00 PM	: LUNCH.	
02 : 00 PM – 03 : 00 PM	: Session – 7 : **Dr.P.Narasimman AP /EEE.**	(Venue : DSP LAB)
03 : 00 PM – 03 : 15 PM	: Hi – Tea.	
03 : 15 PM – 03 : 45 PM	: Session – 8 : **Dr.P.Narasimman AP /EEE.**	(Venue : DSP LAB)
03 : 45 PM – 04 : 15 PM	: Valedictory.	
	: Vote of Thanks by **Mr.R.Thandayuthapani**	

Annexure: IV

REGISTRATION DETAILS

S.NO	Name of the Institution	City	No. of Participants
1.	ARJ College of Engineering and Technology	Mannarkudi	03
2.	Arasu Engineering College	Kumbakonam	04
3.	Holy Cross College (Autonomous)	Trichy	01
4.	KSK College of Engineering and Technology	Kumbakonam	10
5.	PR Engineering College	Thanjavur	04
6.	Sri Bharathi Engineering College for Women	Pudukkottai	07
7.	Government College of Engineering	Sengipatti	03
8.	EGS Pillai Engineering College	Nagapattinum	02
9.	St.Joseph College of Engineering and Technology	Thanjavur	02
10.	Mookambigai College of Engineering	Pudukkottai	03
Total No. of Participants Registered (External-39)			**39**

Annexure: V

RESOURCE PERSON PROFILE

H.HAJITHA BANU

EMBEDDED SPECIALIST IN JADAYU ENTERPRISES

Developed and maintained software for embedded systems with the end goal of providing reliable solutions. Performed system integration and debugging of embedded software, hardware, and firmware. Designed and implemented real-time embedded software applications for various systems.

ACHIEVEMENTS

- Particpated international Conference in Parisutham institute of technology and science.
- Preside over Workshop Kongunadu College of Engineering and technology.
- Accompany Conference Dr.G.R.Damodaran College of Science.
- Conducted the workshop at Vetri Vinayaha College of Engineering and technology.
- Oversee the Workshop at PSG college of Technology.

QUALIFICATION

2013 - 2017
Anna University
Bachelor of Engineering in Communication Systems

2018 - 2020
Anna University
Master of Engineering in Communication Systems

CONTACT

jdhajitha0009@gmail.com
Jadayu Enterprises

Resource person 1

Mr.T.Jeyaseelan

Assistant Professor equipped with extensive experience in academic and industry.

Experience

- 1 year
  Embedded Programmer,
  Sun Associates, Madurai.
- 2 years
  Project Engineer,
  Wipro Technolgies, Bangalore.
- 2 years
  Lecturer
  Shanmuganathan Engineering College, Thirumayam, Pudukkottai.
- 13 years experience
  Assistant Professor,
  Kings College of Engineering, Punalkulam, Pudukkottai.

Field of Interest

- Embedded System
- Image Processing & Biomedical Instrumentation

Highlights

Published

- 10 International Conference
- 10 National Conference
- 10 Journal publications

Education

- B.E(ECE), Karunya Institute of technology, Coimbatore in the year of 2003.
- M.E (BME), College of Engineering, Guindy Campus, Anna University, Chennai in the year of 2008.

Resource person 2

Dr.P.Narasimman

Assistant Professor equipped with extensive experience in Academic & Industry.

Experience

- **7 years 10 months**
  - **Assistant Professor**
  - Kings College of Engineering, Thanjavur
- **1 years 6 months**
  - **Electrical Design Engineer**
  - Aathithyann Automation, Thanjavur
- **11 months**
  - **Assistant Professor**
  - CK College of Engineering & Technology, Cuddalore.
- **2 years 8 months**
  - **Assistant Professor**
  - Kings College of Engineering, Thanjavur

Area of Interest

- Power Electronics,
- Power System,
- Renewable Energy System,
- Electromagnetic Interference,
- Control System a
- Robotics.

Membership in Professional Bodies

- Indian Society for Technical Education (ISTE)
- International Society for Research and Development (ISRD)

Highlights

Published

- 7 International Conference,
- 6 National Conference
- 15 Journal publications
- 4 Patent Published
- 1 Patent Filed
- 1 Funding Proposal submitted
- 1 Book Chapter Published and 6 Reviewer in Journals

Education

- Diploma (EEE),
  Shanmuga Polytechnic, Thanjavur, year of 2002.
- B.Tech (EEE),
  SASTRA University, Thanjavur, year of 2007.
- M.E(PED),
  Government College of Technology, Coimbatore, year of 2010.
- Doctorate degree,
  Anna University,
  Chennai, year of 2020.

Technical Skills

Simulation Tools: ETAP, MATLAB® Simulink, PLECS, PSpice, LabVIEW, Arduino & Keil µVision, AutoCAD, REVIT, MEP Design (HVAC, Electrical, Plumbing, Fire Fighting), Lighting Design – Manual Calculation, Software (Relux & Dialux), Microsoft Office & Associated packages, Programming languages: C, C++ & Python, Real Time Power Electronics Projects

Resource person 3

Annexure: VI

PERMISSION LETTER

Punalkulam
18.08.2023

From

Mrs.U.Jeyamalar, AP/ECE,
Mr.R.Thandayuthapani, AP/ECE,
Workshop Coordinators,
ECE department,
Kings College of Engineering,
Punalkulam.

To

The Principal,
Kings College of Engineering,
Punalkulam.

Respected sir

Sub: Seeking permission to conduct 'Two day National Level Training Programme' – reg.,

With reference to the above, hereby I wish to bring to your kind notice that department of Electronics and Communication Engineering is organizing 'Two day National Level Training Programme on Innovative Project Development using IoT' on 21.08.2023 & 22.08.2023.

In this regard, we request you to kindly grant us permission towards:

1. Utilization of Pallava Hall.
2. LCD projectors & PA system at Pallava Hall.
3. Genset during power interruption on 21.08.2023 & 22.08.2023.
4. Utilization of College Bus for two days.

Thanking You.

Your's faithfully,

1. Mrs.U.Jeyamalar, AP/ECE
2. Mr.R.Thandayuthapani, AP/ECE

Submitted to principal mam

18/8/2023

Submitted to Secretary sir for permission.

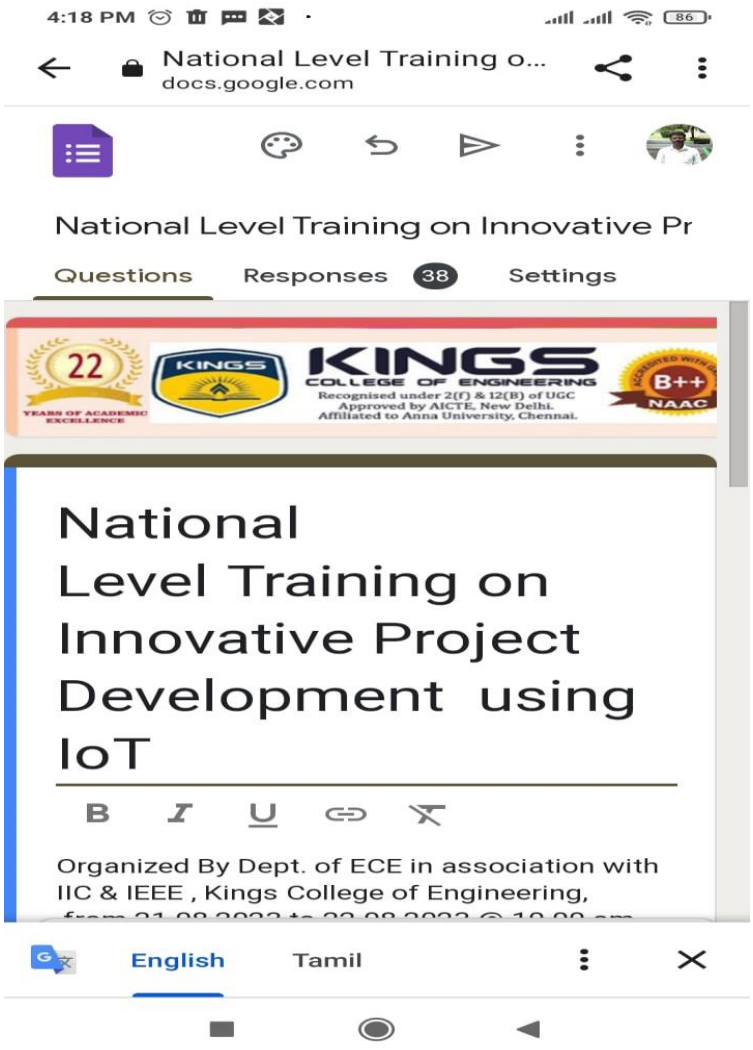
18/8/2023

18/8/23

Annexure: VII

REGISTRATION FORM

Registration Link: https://tinyurl.com/KingsProjectDev



Annexure: VIII

SAMPLE CERTIFICATES

PARTICIPATION CERTIFICATE

23 YEARS OF ACADEMIC

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IEEE MADRAS SECTION

National Level Training Programme on

Innovative Project Development using IoT

Certificate of Participation

This is to certify that _____ of

_____

has participated in **National Level Training Programme on Innovative Project Development using IoT** organised by Department of Electronics and Communication Engineering, Kings College of Engineering in association with Jadayu Enterprises, Thanjavur on 21.08.2023 & 22.08.2023.

Mrs. U. Jeyamalar
Mr. R. Thandayuthapani
COORDINATORS

Mrs. N. Mangaiyarkarasi
CONVENER

Dr. J. Arputha Vijaya Selvi
PRINCIPAL